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Issues in Applied Linguistics

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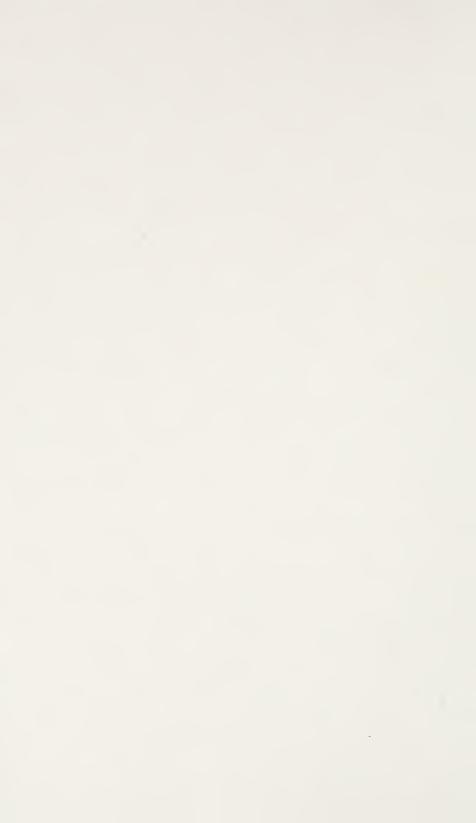
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BOOK REVIEWS

Editorial

This issue of *ial* marks the journal's 10th anniversary. *ial*'s continued growth as an applied linguistic journal is a testimony to our field's breadth of interest. As our name implies we were founded and continue to function as a journal which publishes work that is in some way an 'issue' in the field of applied linguistics. Several of our early volumes included roundtables which worked to generate more dialogue about our field, what was considered applied linguistics, and where different researchers drew boundaries. Our special issues on such topics as language socialization, the neurobiology of language, East Asian perspecitives, sociolinguistics and language minorities, and most recently the organization of participation have also provided a mechanism which editors throughout our history have used to give voice to authors whose empirical research pushes the boundaries of the field. It is exciting that as technology has developed, *ial* has attempted to include more innovative graphical representations of spoken language, and language use in interaction. This has allowed us to further encourage work which examines language use in context and as a naturally occuring phenomenon.

This issue also marks a shift in our editorial staff. Leah Wingard and Kathy Howard who have been working with us during the production of this issue will be taking over as co-editors for the next issue. Leah will also be working with David Olsher who will serve as a guest editor for a special issue on non-native discourse. We would like to take this opportunity to thank the many people who have made *ial* possible. This is an entirely student produced and largely UCLA funded journal, and it is thanks to the work of our entire staff that we have been able to continue and prosper for the last 10 years. In particular, we would like to especially thank past editor Betsy Rymes, our production editors Debra Friedman and Galina Bolden, our book review editors Angela Burnett, Wendy Klein, and Tosha Schore, our managing editor Myrna Gwen Turner, and our treasurer Nathan Carr who put in the many long hours it takes to produce our journal. We would also like to wish Leah and Kathy good luck and continued success with *ial*!

June 1999

Anna Guthrie
Tanya Stivers

A Preliminary Investigation into the Effect of Grammatical Cohesive Devices —their Absence and their Misuse — on Native Speaker Comprehension of Non-native Speaker Speech and Writing

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This paper investigates NS perceptions of the coherence and comprehensibility of NNS writing and talk which lacks or misuses grammatical cohesive devices. NS readers of NNS texts with missing cohesive devices assumed coherence and actually imposed coherence on the text by adding grammatical cohesive devices which were missing in the original , making implicit semantic relationships explicit. Knowledge of narrative structure and of the world assisted the readers to recover these implicit semantic relationships. NSs also assumed coherence and worked to find relationships in the text even where there was potential miscommunication caused by using the wrong cohesive device or by failure to establish a referent. Communication was not usually impaired when the underlying semantic relationship was clear from the discourse context or from background knowledge, although NSs had to work hard to understand some texts. Miscomprehension resulted when underlying semantic relationships were not retrievable from other sources.

THEORETICAL BACKGROUND

Halliday and Hasan use the term "texture" for what is often referred to as coherence, asserting that texture is related to the listener's perception of coherence (1989, p. 72). It is texture that distinguishes a text from a disconnected sequence of sentences, from something that is not a text. This "texture is provided by the cohesive RELATION" (1976, p. 2). "Cohesion occurs where the INTERPRETA-TION of some element in the discourse is dependent on that of another. The one PRESUPPOSES the other, in the sense that it cannot be effectively decoded except by recourse to it" (1976, p. 4). They give the following example (1976, p. 2):

Example 1
Wash and core six cooking apples. Put them into a fireproof dish.

According to Halliday and Hasan, "them" in the second sentence refers to the "six cooking apples" in the first sentence, providing a cohesive relationship between the two sentences, enabling the reader or hearer to interpret the passage as a text rather than two disconnected sentences. Examples of cohesive relationships, according to Halliday (1985), are reference (including third person pro-

nouns as discussed above, demonstratives, and comparatives), ellipsis, substitution, conjunction, and lexical cohesion.

Halliday and Hasan attribute a strong role to cohesive devices in creating coherence. In an earlier work they allow that a reader will go to great lengths to interpret a text as complete and intelligible, an aspect of the human tendency to assume in the other person an intention to communicate (1976, p. 54). In discussing conjuctive relationships, they also say that

> it is the underlying semantic relation . . . that actually has the cohesive power.
> This explains how it is that we are often prepared to recognize the presence of
> a relation of this kind even when it is not expressed overtly at all. (1976, p.
> 229)

Yet even here Halliday and Hasan insist that "textness" cannot be realized without the presence of the cohesive marker.   In a later work (1989) they make it very clear that they believe coherence is created by the cohesive devices. They not only see cohesive devices as necessary to the coherence of a text, they insist that both lexical and grammatical cohesion are necessary for a group of sentences to form a coherent text. They give the following example to show that the presence of lexical cohesion, without grammatical cohesion, is insufficient for coherence (1989, p. 83):

Example 2
A cat is sitting on a fence. A fence is often made of wood. Carpenters work with wood. Wood planks can be bought from a lumber store.[1]

Halliday and Hasan (1989) do not claim that cohesive relationships alone create coherence; they also acknowledge the importance of generic structure in enabling a reader to interpret a text; however, they do not view generic structure as sufficient in itself for establishing coherence, without both grammatical and lexical cohesion.

Even though Halliday and Hasan's work has provided valuable groundbreaking insights into the relationship between cohesion and coherence, many researchers have felt that they place too much emphasis on the role of cohesive devices in creating coherence. There have been two main types of criticism: (1) It is not the cohesive devices themselves, but inherent semantic or pragmatic relationships between sentences that create coherence; the cohesive devices are merely explicit representations of these inherent relationships (Brown and Yule 1983; Mann and Thompson 1983; Fahnestock 1983); and (2) Coherence is not created primarily by the cohesive devices but by the discourse structure and the knowledge that the reader or listener brings to the discourse (Witte and Faigley 1980; Tierney and Mosenthal 1980; Morgan and Sellner 1980; Lindsay 1984; Carrrell 1982; Fahnestock 1983; Van Dijk 1977,1980; Bamberg 1983; Stoddard 1991; Levinson 1983; Schegloff 1990). It is in the interaction between the reader

and text, or between participants in a conversation, that meaning is created. Both types of criticism stress that readers and listeners expect discourse to be coherent and will work to achieve this sense of coherence.

Underlying Semantic Relationships

A major portion of Brown and Yule's (1983) critique of Halliday and Hasan (1976) focuses on inherent semantic relationships between sentences. According to Brown and Yule, although Halliday and Hasan recognize that cohesion is provided by the underlying semantic relationship, not the explicit cohesive marker, Halliday and Hasan insist that "textness" cannot be realized without the presence of the cohesive marker. Brown and Yule maintain that formal markers are not in a one-to-one relationship with a particular cohesive relationship, and that cohesive relationships exist in the absence of formal markers. The explicit realization of these cohesive relationships, or underlying semantic relationships, is not necessary to identify a text as a text. In fact, Brown and Yule show that formal cohesive devices are neither necessary nor sufficient to the identification of a text. Readers will naturally assume that a sequence of sentences constitutes a text and will assume semantic relationships between the sentences.

Further support for Brown and Yule's position is provided by Mann and Thompson's (1983) "relational propositions," implicit propositions which arise between parts of a text, allowing readers to perceive the parts as related. Readers, they say, begin with the assumption that a passage is a text, a coherent whole. This assumption is related to the cognitive ability described by Gestalt psychology as "closure, the ability to impose connectivity on disconnected parts of a visual image" (1983, p. 1). Readers also assume that a writer intentionally wrote the text. This allows readers to assume that parts of a text go together, and to discover the implicit connections such as "cause," "justification," "sequence," "background." If we try to read a text without its relational propositions, it is not coherent. For example, the following sentences (1983, p. 17) have the relationship of justification: the first justifies the second. If we read the sentences without this relationship, they cannot be interpreted as a unit:

Example 3:
I'm Officer Krupke. You're under arrest.

These relationships collectively connect the entire text, yet are often implicit. "Relational propositions arise in a text independently of any specific signals of their existence. . . there need be no structural feature in the text whose function includes expressing these relationships" (1983, p. 9,12).

Fahnestock (1983) also discusses underlying semantic relationships between sentences, pointing out their role in composition pedagogy. According to Fahnestock, the fact that semantic relationships between clauses can be articulated, even though they are unmarked, is a necessary assumption behind advice

given to students about putting in transitions. "Explicit semantic markers cannot be added unless the connections they represent are inherently present between two clauses" (1983, p. 402). A correlate to Fahnestock's insight is that transition errors could not be perceived if the transition words created the semantic relationship rather than expressing an already underlying relationship.

Interactive Models and Schema Theory

A second group of researchers attributes a greater role to discourse structures and to elements outside the text in creating a sense of coherence. Many of these critiques are based on psycholinguistic models of language processing that take into account the interaction between writer, text and reader. The research is often based on readers' perceptions of coherence in student writing.

Witte and Faigley (1980), in an analysis of freshmen compositions, show that Halliday and Hasan's framework, focusing only on mechanisms within a text, does not capture conditions such as context, purpose, and audience which "allow a text to be understood in a real-world setting" (1980, p. 199). Similarly, Tierney and Mosenthal (1980) feel that researchers should use an interactive framework, including the interactions of the reader, writer, text and context. They found no relationship between the number of cohesive ties within a text and coherence ranking in compositions.

For Morgan and Sellner (1980), cohesion is a surface manifestation of coherence. Using Halliday and Hasan's example of cooking apples (Example 1 above), they say "it is because we assume the text is coherent that we infer that them is intended to refer to the apples . . . It is not knowledge of language that supplies this conclusion" (1980, p. 180). Carrell (1982) also sees cohesion as a natural outcome of coherence. In her estimation, coherence is not located in the text. Coherence cannot be simply defined as a configuration of textual features. When schema-theoretical views of text processing are taken into account, coherence can be seen as a result of an interactive process between the text and the reader.

Fahnestock (1983) points out that, aside from cohesive devices which tie individual sentences together, there are "successive integrations of successively larger groups of sentences . . . [with] relationships not only between contiguous sentences but also between groups of sentences and even paragraphs" (1983, p. 401). Similarly, Van Dijk (1980) states that cohesive ties create only "local" coherence, not discourse-level or "global" coherence. For global coherence to be created, texts must have an overall form or structure (van Dijk 1977, p. 149). Bamberg (1983, p. 419) sees the predictability of this overall form, or schema, e.g. the structure of a story or a scientific report, as having the function of helping "readers anticipate upcoming textual information, thereby enabling them to reduce and organize the text into an understandable and coherent whole".

Coherence in Conversation

Researchers who study conversational interaction have reached similar conclusions about the role of discourse structure and the role of interaction in creating

a sense of coherence. Researchers in the tradition of Conversation Analysis (e.g. Sacks, Schegloff and Jefferson 1974) have discovered that ordinary conversation is highly structured. A basic unit of this complex sequential organization is the adjacency pair (e.g. question-answer, offer-acceptance [Schegloff 1990]). To this basic form can be added pre-sequences, post-sequences, or insertion-sequences. For example, the following request-denial sequence (Levinson 1983, p. 304) has an inserted sequence between the request and denial which functions to provide information about whether or not the request can be granted:

Example 4

request	A: May I have a bottle of Mich?
insertion	B: Are you twenty-one?
sequence	A: No
denial	B: No

Conversation analysts speak of the notion of conditional relevance: given a first pair part of an adjacency pair, a second pair part is relevant and expectable. Utterances following the first pair part are interpreted in light of that first pair part: (1) either as a second part of the pair, (2) as related to clarifying the first pair part, or, (3) as in the above example, as establishing the conditions (e.g. collecting necessary information) for a decision between alternative second pair parts (Schegloff 1990). This setting up and fulfillment of expectations makes a conversation coherent. The sequential structure makes a conversation coherent. It provides the basis for coherent links between what are, on the surface, unrelated and noncohering utterances (Schegloff 1990). The sequential structure of conversation answers the question "Why that now," first for parties to the conversation in progress, and second, to the researcher of conversation (Schegloff 1990, p. 55). In example 4 above, although there are no formal markers of cohesion between the first two utterances, they were perfectly coherent to the parties because of the expectations set up by the sequential structure of conversation.[2]

RESEARCH PROJECT

The above researchers agree that, although Halliday and Hasan's insights about the role of cohesive devices are valuable, they have placed too much emphasis on the role of cohesive devices in creating, rather than simply conveying, coherence. In this project I test the role of grammatical cohesive devices in creating coherence by answering the following two research questions: (1) How does the lack of grammatical cohesive devices in NNS language affect coherence and comprehensibility? (2) How does the misuse of grammatical cohesive devices in NNS language affect coherence and comprehensiblity? Coherence in this study is broadly defined as that which distinguishes a text from a disconnected sequence of sentences. Because these are very broad questions, this project is merely a preliminary investigation into possible effects which need additional research to verify.

Research Question 1

The first research question — How does the lack of grammatical cohesive devices in NNS language affect coherence and comprehensibility? — necessitated using data which had few or no cohesive devices. The data chosen were Language Experience stories collaboratively composed in beginning ESL classes for Cambodian and Mien (hilltribe Laotian) refugees. Following Language Experience Approach methodology, students dictated a story to the teacher who wrote it down just as the students told it without correcting the language, but using correct spelling and punctuation. The data are thus written versions of oral stories. For the purposes of this research, native speakers would be able judge these stories for comprehensibility without interference from pronunciation or orthography.

Nine native speakers with little or no background in formal linguistics were given four short student stories of the Language Experience Approach type. They were asked to rate how difficult the stories were to understand, and then to rewrite them in correct English. Five of the native speakers were graduate students, three were undergraduates, and one was a special education teacher in an elementary school. All had limited or no experience with low-level non-native speakers of English. The NS rewrites were then analyzed for changes made to the original stories, especially the addition of grammatical cohesive devices showing inferred coherence. In the following section I will discuss each of the stories in turn. I will show how NSs rated the story for comprehensibility and how they displayed in the rewrites their understanding of underlying semantic relationships in the story.

Story 1
[1]Sometimes in Laos fire house. [2]Everybody go outside. [3]Sit down and cry.
[4]Small fire take water. [5]Throw water on the house. [6]Everybody help.

Of the nine NSs, one said she "didn't fully understand the story": it took her a while to understand "fire house." Five said they "had to work a little" to understand it; one of these had trouble with the connection between the fourth and fifth sentences: he felt he was "making up [rather than inferring] what the passage meant;" for three NSs the text was "no problem" to understand. In the rewrites, except for some variation in the subject of sentences four and five and variation in verb tense, both of which were unexpressed in the original story, there was consensus on the meaning. Some examples of NS rewrites follow:

Example 5
Sometimes in Laos a house would catch on fire. Everyone in the house would go outside and sit down and cry. If it was a small fire, we would take water and throw it on the house. Everybody would help.

Example 6
Sometimes in Laos a house catches on fire. Then everybody goes outside. They sit down

and cry. A small fire can be fought with water. People throw water on the house. Everybody helps.

Example 7
Sometimes in Laos a house catches on fire. Everybody goes outside. They sit down and cry. If it's a small fire it can be put out with water. We throw water on the house and everybody helps.

As these examples show, all of the NSs assumed the original text was coherent even though it contains only one example of grammatical cohesion, the definite article "the," and no examples of pronoun cohesion which would maintain subject reference for topic continuity in sentences 3 to 5. The only other examples of cohesion are lexical, with the repetition of "fire," "house," and "water." The one example of grammatical cohesion, the definite article "the" in sentence 5: "Throw water on the house," does not establish co-referentiality with the previous "house" in sentence 1: "Sometimes in Laos fire house." Aside from this one example which does not signal a straightforward cohesive relationship, there is nothing in the grammar of the text to show that the sentences go together. Yet there is strong evidence for the type of "relational propositions" discussed by Mann and Thompson (1983). The first sentence, "Sometimes in Laos fire house," provides the background, or setting for the rest. It gives the aspect lexically: "sometimes," and the location. Sentences 2 and 3: "Everybody go outside. Sit down and cry," are seen as results of the fire in sentence 1. Without any grammatical marking to make this relationship explicit, the NSs saw sentences 4-6, "Small fire take water. Throw water on the house. Everybody help," as a subset of the general situation expressed in the first three sentences, many expressing this relationship with a conditional "if - then" clause. Each saw the "fire" of sentences 1 and 4 as not co-referential, and the "water" of sentences 4 and 5 as co-referential. Each of the NSs saw the expressed subject of sentence 2, "everybody," as co-referential with the unexpressed subject of sentence 3. None of the NSs saw these as unrelated sentences lacking coherence. Each of the NSs perceived the sentences as a story, and each perceived basically the same story, although most had to work somewhat to understand the story.

Story 2:
[1]Go to Thailand from Cambodia. [2]Walk 5 days. [3]Sleep in the day.
[4]Walk at night. [5]Soldiers kill many people.

This story has no grammatical cohesion at all, only lexical cohesion: "walk" and its hyponym "go," and the antonyms "day" and "night." There is nothing explicit in the grammar to show that the sentences are related to each other. NSs were given this text without being given any background about the authors. Yet in this case, of the nine NSs who read the text, only one said she "had to work a little" to understand it; eight said it posed "no problem" in understanding. Following are

several examples of NS revisions:

Example 8
To get to Thailand from Cambodia, you have to walk for 5 days. You have to sleep in the day and walk at night because soldiers kill many people.

Example 9
We went to Thailand from Cambodia. We walked 5 days. We slept in the day. And we walked at night. The soldiers killed many people.

Example 10
I went from Cambodia to Thailand. I walked and it took 5 days. I had to walk at night and sleep during the day since soldiers were killing people.

Each of the NSs saw the passage as a coherent whole. Each of them saw the first four sentences as having the same subject, providing topic continuity, though the subject varied in the rewrites, as it was unexpressed in the original version. Six of the NSs gave it a first person subject, a common subject for narratives; one NS used "we," and two used a generic "you." Four of the nine made the unexpressed cause-effect relationship explicit (e.g. "You **have to** sleep in the day and walk at night **because** soldiers kill many people)." Others who did not make this relationship explicit in their rewrites mentioned the relationship orally.   Because of the lack of subject and aspect marking, it was impossible to determine whether this was a story about a specific event or a generic pattern, but NS readers did not seem to be aware of this ambiguity, as eight out of nine said they had "no problem" understanding the text. There was such a strong impulse to see this as a text and such confidence that they had understood the story that NSs did not notice what could possibly be ambiguous.

Story 3:
[1]In Cambodia and Laos no telephone. [2]I want to talk to my friend, I go my friend house. [3]Go on horse. [4]Maybe 1 hour. [5]Maybe 2 days. [6]Maybe 5 days. [7]In America I have telephone. [8]Call telephone. [9]Talk uncle.

This example has no grammatical cohesion other than the possessive adjective, "my," referring back to the subject "I" and connecting the two clauses of sentence 2. The repetition of "I" additionally provides some topic continuity. There are examples of lexical cohesion: "telephone," "friend," "talk," "go," and "days," and examples of parallel structure: "In Cambodia," and "In America."   In this case, as in the previous two stories, NSs saw this text as a coherent whole, although they had a little more difficulty than with story 2. One "didn't understand it totally;" he had problems with the connection between sentence 3 and the following sentences: "Go on horse. Maybe 1 hour. Maybe 2 days. Maybe 5 days." In the end he assumed, along with the others, that the author was conveying the time it took to go to the friend's house. Two others "had to work a little," one of

these with the same confusion about the three times cited. The remaining six NSs, however, said they had "no problem" understanding the text. Following are some of the rewrites:

Example 11
In Cambodia and Laos there is no telephone. When I want to talk to my friend, I go to my friend's house. I go on a horse. It takes maybe 1 hour, or maybe 2 days, or maybe 5 days. In America I have a telephone. I can call on the telephone and talk to my uncle.

Example 12
In Cambodia and Laos there are no telephones. If I want to talk to my friend I go to the friend's house on horseback. It could take an hour, two days, or five days. In America I have a telephone. I call on the telephone and speak to my uncle.

Example 13
There are no phones in Cambodia and Laos; so, when I want to talk to one of my friends, I must go to his or her house in person. I go there on horseback. Sometimes it takes an hour, sometimes 2 days, sometimes 5 days — depending on where my friend lives. But in America, I can pick up my telephone and call my uncle.

Again, each of the NSs sees basically the same story. The story is seen as a contrast between one aspect of life in Southeast Asia and in America. The sentences beginning "In Cambodia and Laos," and "In America" give the setting for the two contrasting situations. A conditional relationship is seen in sentence 2 : "I want to talk to my friend, I go my friend house." The story is seen consistently as a generic situation, not a specific incident. The final three sentences about life in America are all assumed to have the same subject.

Story 4:
[1]Someone come my house. [2]Says give me money. [3]Husband take gun shoot. [4]Go outside die. [5]Call police. [6]Emergency 911. [7]Policeman come. [8]Take black man go hospital die.

This story has no grammatical cohesive devices and only four instances of lexical cohesion: "someone"/ "black man," which are co-referential, "police"/ "policeman," which contribute to topic continuity, and repetitions of "take" and "die," which do not add to the coherence of the passage. In fact the repetition of "die" should cause major confusion, as the man seems to die twice: "Go outside die" and "Take black man go hospital die." Two NSs said they "had to work a lot" to understand the story. This text has syntactic problems which may contribute to the confusion. However, in spite of the confusion, five NSs said they only "had to work a little" and two even said they had "no problem" understanding the story. Several NSs were asked "When did the man die?" Most said they assumed he was in the process of dying, or was badly injured outside the house and died at the hospital. One said she assumed the police would not take a dead man to the hospi-

tal. However, another assumed the man died outside the house and was dead on arrival at the hospital. Following are examples of NS versions of the story:

Example 14
Someone came to my house and said, "Give me money." My husband took a gun and shot him. He went outside and died. We called the police — Emergency 911. A policeman came and took the Black man to the hospital, and he died.

Example 15
Someone came to my house and demanded that I give my money. My husband took his gun and shot the person. The person went outside. I called the police. The emergency number is 911. A policeman came (in response to the call). He took the intruder, a black man, to the hospital, where he died.

Example 16
A black man came to our house and tried to rob us. My husband shot him and the man went outside and died. We called the police and 911. They came and took the black man to the hospital. He died.

It is striking that, in spite of almost total lack of cohesive devices and a major unresolvable confusion about when the man died, the story is still seen as a coherent whole, and, except for when the man died, NS versions are very similar. The one exception was a NS who had written: "Someone came to my house. He said **he'd give me money.**" When I asked her why the husband shot the man, she realized that she had misunderstood the story. My question enabled her to make the connection between the second and third sentences which she had missed on the first reading: "Says give me money." and "Husband take gun shoot." All the other NSs immediately realized that this was a story about a robbery and that the "husband" was the husband of the story teller.[3] Everyone used grammatical cohesive devices, either the definite article or third person pronoun, to show coreferentiality between the "someone" in the first sentence, the unexpressed subject of the second sentence, the unexpressed object of the third sentence, the unexpressed subject of the fourth sentence, and the "black man" in the last sentence. Thus topic continuity was inferred. None of the NSs made the thief the subject of the fifth sentence, "Call police," although there is no grammatical or structural reason why they should not do so. It is their knowledge of the world, specifically what happens in robberies, that allows them to correctly understand who is doing what. Aside from this knowledge of the world, a universal knowledge of story scripts also makes this story interpretable. The succession of actions is seen, according to the rules of narrative, as following each other in time, and the story is seen as a specific incident which happened to the writer in the past.

Summary
It is clear from NS responses to the above stories that a lack of grammatical cohesive devices does not necessarily lead to lack of coherence and lack of com-

prehension, provided implicit relationships between sentences are clear from the discourse context or knowledge of the world. Readers approached texts with an assumption of coherence and worked to create it, even when this was made difficult by the NNSs' insufficient control of the language, e.g. when the thief seemed to die twice. There was a surprising amount of similarity between NS versions of the stories, showing the existence of inherent semantic relationships between the sentences. These relationships were understood because of knowledge that readers bring with them to a text. It is possible that, had the stories been longer and more complicated, or the writing more abstract, explicit cohesive devices would have been needed to make the text coherent. This remains to be investigated. Yet it is nonetheless surprising that NSs claimed so much understanding and demonstrated this understanding in such similar ways as evidenced in the rewrites, considering that the NS were given no background about the writers, and the two groups had come from such different cultures: one, preliterate and nonliterate, from isolated rural villages in Southeast Asia, and the other, educated urban Americans.

Research Question 2

We have seen above that a lack of grammatical cohesive devices does not necessarily cause readers to see a text as incoherent or create serious problems in comprehensibility. But is this also true for misused cohesive devices? If the cohesive devices themselves play a large role in creating coherence, we might expect that when these devices are misused, misunderstanding will result. The question, "How does the misuse of grammatical cohesive devices in NNS language affect coherence and comprehensiblity," was investigated using a variety of spoken and written data with errors in grammatical cohesion, either use of the wrong form, or use of a form with an unclear referent.

Spoken data included telephone conversations between adult NS-NNS friends and an interview between an adult NS and a 13-year-old NNS. Comprehensibility was determined by investigating the utterances following the target NNS utterance to see whether there was a sequentially appropriate response by the NS and whether that NS response was accepted as appropriate by the NNS.[4] Written data consisted of excerpts from intermediate level NNS compositions. Comprehensibility was tested as follows: Four native speakers were asked to read the selections, correct errors in underlined portions, and relate how difficult the passages were to understand. For some passages, NSs were asked specific questions to determine if they had understood targeted portions of the passage with errors in grammatical cohesion. Three of the native speakers were undergraduates with little experience with NNSs. One was a graduate student in his first year of ESL teaching.

The grammatical cohesive devices focused on in this portion of the study were determined by the data. They included substitutes, determiners, third person pronouns, and plural inflections on nouns. All but the last are included in Halliday

and Hasan's typology. The relationship most often signaled by these devices is topic continuity: the establishment and maintenance of a referent in a text or conversation.

I will first discuss data segments where misuse of cohesive devices did not cause serious problems in comprehension of spoken or written data. I will then turn to those data segments where problems in comprehension occurred.

When Comprehension is not Seriously Impaired

The first example is from a NS-NNS telephone conversation[5]. It includes misuse of the substitute, "one." The phone call is coming to a close:

Example 17

    Jim: Oh:: thanks for calling
    Tang: You're welcome (0.2) andda if you have any you know (h)
           thing needs help jus ta give me a call .h OH:: you don't
           have my number yet right?
    Jim: Um:: no (I guess) I don't
 → Tang: Do you want **one**?
    Jim: Uh huh
    Tang: .h Okay it's 534 (0.4) 987 (0.8) mm:: jus' a minute

In this conversation, there is no sense of miscomprehension even though this use of "one" is incorrect and could potentially cause the listener confusion in finding the referent. In this case the conversational structure, as previously discussed, provides such strong predictability even before the wrong form is used, that there is no problem understanding the referent. Tang gives a standing offer of help to Jim; all Jim has to do is call. After making this offer, Tang displays a sudden realization ("OH::") (Heritage 1984) that Jim may not have his phone number, and, after confirming this with Jim, asks "Do you want . . ." In this sequential context, what Tang is asking for is projectable even before the "one" is heard. The conversational structure provides sufficient information to outweigh any potential confusion from using a wrong form.

In the following example of pronoun error, from a NS-NNS phone conversation[5], Huang is telling her friend Jane what she named her new baby. The baby has both a Chinese name and an American name, Steven. They will call him Steven:

Example 18

    Huang: (h) i (h) *h Yeah but uh we- we- we al- always cohl him
              (0.2) Steveen hh
    Jane: Steven?
    Huang: Uh huh
 → Huang: **He's** okay?
    Jane: Yeah::: (Yeaahss:::)
    Huang: Think so?

	(0.2)
Jane:	Yeeaas::
Huang:	Thank you (h) i (h) - (h) i (h)
Jane:	(h) i (h) - (h) i (h) That's <u>cute</u>:::
Huang:	Mm hmm
Jane:	So how did you get <u>Steven</u> out of all the <u>names</u>?

In this example, Huang uses "he" to refer to the name "Steven." Even though this is the incorrect form ("he" is not used to refer to names in English), the NS's immediate response: "Yeah," and her subsequent response: "that's cute," show that she has no problem understanding the referent for "he." Both the structure of the conversation and the background knowledge combine to disambiguate the referent. Huang had just told Jane that she and her husband had chosen the name "Jamie" for their baby, but Americans had told them this is a diminutive and would not be proper when the boy is an adult. This previous mistake with an American name, plus the current topic of the conversation, the substituted name Steven, sets the stage for the question about the adequacy of the second name.

In the next example there is an even more complicated confusion of pronouns. Pajarito, a thirteen-year-old boy from El Salvador, is being interviewed by a NS of English. As will become obvious, Pajarito does not yet have control over the past tense or the gender of third person pronouns in English. He has been asked to tell about the friends he had in El Salvador:

Example 19 (Lu 1990, pp. 71,72 simplified)
P:	i got one friend his name is uh like uh adam adan
	in spanish he - he - he going with me and another
	his name is guillermo he - we are going to him to in the
	restaurant and because he live - uh like two blocks
	of my house and i going to bike to - for talk with **her** mom
	who let him going with me to the - to play basketball or
	soccer and then him and then we take him going to
	guillermo and talk with **her** mom because **her** mom is
	so hard to talk to **her**.
S:	why is that.
P:	because **he** let - **he** not let him going outside.
	because he doesn't got good grades.
S:	oh she is strict then.
	and what are some of the ways that you used to convince
	her to let him come out.

In this example Pajarito confuses possessive adjective gender: "her mom" for "his mom," and pronoun gender in both objective and nominative case: "her" for "him" and "he" for "she." Yet in spite of sometimes massive gender confusion, in the talk transcribed above, the NS appears to have understood immediately what Pajarito meant. There were no pauses or hesitations and the responses were se-

quentially appropriate, e.g.: "why is that" and "oh she is strict then . . . what are some of the ways that you used to convince her to let him come out." Both the interview and narrative contexts and the clear establishing of referents helped to disambiguate the text. Pajarito was asked about his friends in El Salvador and answered with a narrative telling what he used to do with them, introducing them by name. Knowledge that the NS brings into the situation about how a young boy may have trouble convincing a friend's mother to let him go out, may also have helped the NS to find the correct referent more easily. The NS may also have noticed that Pajarito does not control the gender system in English. If he had had more control, and the NS was not expecting pronoun errors, the errors may have been more misleading. This example shows that even massive confusion of pronoun gender does not *necessarily* lead to lack of comprehension.[6]

The above spoken data samples show how conversational, narrative, and interview structures, combined with background knowledge, can help to clarify meaning when cohesive devices are misused. We will now turn to examples from written text.

The example below contains an error in the use of "one." It is taken from a study of ESL composition number/person errors by Zalewski (1993, p. 693):

Example 21
When I saw the news about democratization in Russia first time, I thought it was great thing. Because I always felt sorry about the people in Russia. But, I didn't see any good news about Russia after the first one.

Of the four NSs who read this passage, one said she had "no problem" understanding it, two said it was "not that difficult," and one said it was "very difficult." Three of the NSs said that "one" refers to "good news," or "news report," and one said it refers to the "time that person saw news on Russia." For three out of four NSs, this passage seemed fairly clear. There was no ambiguity, no possible other referents for "one," and the context made the referent fairly clear: "the first" helps to establish a logical referent for "one." However, one NS, even though he eventually found the intended referent, perceived the passage as difficult to understand. This difficulty may also have been caused by the accumulation of other types of errors in the passage.

The next example, with determiner errors, is from the same data set (Zalewski 1993, p. 694):

Example 22
In Japan there are two way which young women and men find their partners for their marriages. I want to explain what the arranged marriage is and what advantages or bad points it has.

There is a go-between who take care of between a boy and a girl. Before they meet, they can get personal histories of each other. then, a go-between gives them a meeting. In a

meeting, a go-between introduces a boy and a girl to each other. In almost case, meetings are dinner parties. Their parents often go with them to a meeting. If they are interested in each other, they go out together for a while. And then they decide if they get married or not.

In this selection, the writer uses indefinite articles throughout the passage, including places where the definite article should be used to show co-referentiality and topic continuity. In this case, three of the four NSs said they "had to work a little" to understand this passage; only one said it was "no problem." When asked to correct any possible errors in the underlined portions of the passage, all of the NSs replaced the indefinite article with either "the," "this," or "these" in appropriate places to show co-referentiality and topic continuity, relationships which they had perceived in spite of the original writer's use of forms which indexed non-referentiality. The NSs also all agreed that the writer was discussing a general pattern, not a specific situation. Following is an example of a typical NS correction:

Example 23
Then, **the** go-between gives them a meeting. In **the** meeting, **the** go-between introduces **the** boy and **the** girl to each other. In almost cases, **these** meetings are dinner parties. Their parents often go with them to **the** meeting.

In this case, although the original writer used inappropriate forms which could potentially have destroyed cohesion, the narrative format of the text provided a strong framework for topic continuity so that, in spite of the inappropriate forms, the text was comprehensible, although most of the NSs had to work harder to understand the text. The additional work involved in this case may also be the result of a significantly higher portion of errors.

A third example from Zalewski (1993, p. 695), contains determiner and plural morphology errors:

Example 24
Most gestures of Americans are more exaggerated than ones of Japanese in general. For example, Americans shrug the shoulders and lifts both hands to mean "I don't know." On the other hand, Japanese shakes the head from side to side.

Zalewski sees this as an example of lost morphological information which is unrecoverable for the reader: "in the absence of possessive pronouns (or possibly determiners altogether), the problem with number/person inflections becomes unsolvable for the reader" (1993, p. 695). However, all four NSs presented with this example felt they had no problem understanding. They all understood the author to be discussing Americans and Japanese in general, and, in their corrections, they all used plural morphology for the verbs and corrected the definite article "the" to "their." The context of the passage, including the lexical items "in general" and

"for example," clearly established that the author was contrasting American and Japanese gestures in general, and the lack of plural morphology and wrong determiner were in no way barriers to comprehension.

The data segments discussed above show that the misuse of cohesive devices does not necessarily cause serious problems in comprehending spoken or written data. Conversational, narrative, and interview structures, combined with background knowledge, can help to clarify meaning in conversation. The discourse context (e.g. a narrative structure which provides topic continuity) can disambiguate a written text. We will now turn to those data segments where problems in comprehension occurred.

Comprehensibility is Impaired

The following data segments show problems in comprehension by the NS interlocutor or the NS reader. Earlier we saw a data sample (Example 19) from an interview of Pajarito, a thirteen-year-old boy from El Salvador. Even though Pajarito showed massive confusion of pronoun gender, his talk was still understood by the NS interviewer. In the next example from the same interview (Lu 1990, p. 65 simplified), the pronoun referent is not so clear to the NS:

Example 25

P:	um the first uh time i come here
	i going to some place with my family
→	**my family** like here and **she** say - he need - **she** need work
	for uh win the - for win money to buy food
	and something like that
→	+and then h- **she** - **she** got residence right here.
S:	**oh your mom?**
P:	**no. my mom is in el salvador.** i stay with my aunt and my
	uncle because -
S:	oh i see.

In lines 3 and 6 — highlighted with arrows — the pronoun "she" most likely refers to "my family," a translation from Spanish, where "family" is feminine and requires a feminine pronoun. The NS interlocutor, however, is confused by the feminine pronoun in English and suggests what turns out to be an incorrect referent for confirmation in a repair: "oh your mom?" Pajarito subsequently corrects this misunderstanding: "no, my mom is in el salvador. I stay with my aunt and my uncle because-". Since the interlocutor is not a Spanish speaker and Pajarito does not usually confuse pronoun number as he does pronoun gender, the use of "she" rather than "they" to refer to "my family" was not understood.

Earlier we also saw two data samples (Examples 22 and 23) from Zalewski (1993) with determiner errors which were disambiguated by the narrative framework or the surrounding context. The following example (Zalewski 1993, p. 696-697) with misuse of determiners is more complicated:

Example 26
      This article is about a thrift store in the United States that has become a way of
life for many college students. This remind me about this kind of store in my country. In
Bangkok, the capital of Thailand, we have a used clothing store that sell clothes, shoes,
and sometimes a musical instrument for a very cheap price.
      However, a thrift store in Bangkok is different from a thrift store in this article
in the aim of establishment. In Bangkok, a thrift store is owned by the Council of
Bangkok and managed by a governor. The aim of establishment is for charity. All
benefits they have were contributed to many poor school in many long distance prov-
inces. Therefore, goods in this store were donated by many group of people . . .
      Moreover, Bangkok thrift store is different from American thrift store in the
idea that in the article, many students said thrift store allowed them to express their
individuality. But in Bangkok, people wanted to go to the thrift store because they
wanted to dress up in the clothes that once were used by their favorite person.

      In this selection, it is difficult to understand whether the writer is talking
about a particular thrift store in Bangkok or thrift stores in general in Bangkok.
The first paragraph suggests a particular thrift store: "In Bangkok we have . . . a
used clothing store," but the second paragraph, instead of using the definite ar-
ticle, which would have referred to the particular clothing store introduced in the
first paragraph, seems to suggest thrift stores in general, except for "this store" at
the end of the paragraph. To an experienced ESL teacher, a careful reading sug-
gests that the writer is describing a particular thrift store in Bangkok, but does not
have the control over article usage to establish co-referentiality. However, all four
of the NSs who were asked to read this passage felt that the author was describing
Bangkok thrift stores in general in the second and third paragraphs. Unlike the
earlier narrative with determiner errors (Example 23), there was not enough infor-
mation from the structure of the passage to counter the misleading cohesive forms
used by the author. Perhaps because of the ambiguity, three of the four NSs felt
this passage was difficult to understand. One wrote: "I understand the words but
not the meaning. . ."[7]
      The next example, also from Zalewski (1993, p. 694), shows a somewhat
different case where error causes loss of information which is not retrievable from
either the discourse context or background information:

Example 27
Recently, I really like to read essay. Especially I like essay written by Mori. She's
always fighting her realities of life and also creating something. Her essay always gives
me some hints to live my life.

      Because there is neither plural morphology nor determiners, it is impossible
to know whether the author is referring to a particular essay by Mori, or to essays
by Mori in general. The last sentence indexes a particular essay, but the sentences
before that are ambiguous. In this case all four NSs said that the author was dis-

cussing essays by Mori in general. The first sentence may have suggested to the readers that the author would be discussing essays in general, and there is nothing to deliberately contradict this pattern until the last sentence. Two of the four NSs found this passage difficult to understand. The other two said it was not difficult, perhaps not even perceiving the ambiguity. This lack of perception of ambiguity demonstrates how strong a reader's expectation is of finding coherence in a passage, so strong, in fact, that readers may create coherence where it is absent. A similar reaction occurred in the previously discussed LEA story #4 where the thief's dying twice was not perceived as a problem for some readers.

The third example (author's data) also shows how the use of a misleading grammatical form without a sufficiently strong schema to assist comprehension can lead to miscommunication:

Example 28
In this essay, I will tell how much a group is important thing human being belongs to as a social interaction and how a group formed in our society through a group of friends I belong to.
A group of friends consist of five people as a primary group. They emotionally formed with cohesive relationship like other primary groups. During almost five years, their relationships have continued . . .

As the reader begins the second paragraph, it first seems as though the author is beginning a definition of "a group of friends" in general. However, as the passage progresses, it becomes clear that this is a specific group of friends. Yet even though the last part of the paragraph should clarify the misconception caused by use of the indefinite article, three out of four NSs asked to correct this passage saw "a group of friends" as referring to a group in general, not a specific group. Because the format of the composition does not predict a clear alternative — either friends in general, or a specific group of friends could be discussed at this point — the meaning initially indexed by the indefinite article overwhelmed the intended meaning revealed later.

CONCLUSION

Coherence in this study was broadly defined as that which distinguishes a text from a disconnected sequence of sentences. There was no attempt made in this study to distinguish between levels of coherence or quality of speech or writing. The focus was on comprehensibility of implicit semantic relationships which were not explicitly expressed or which were inaccurately expressed. Because this was a pilot study dealing with a broad range of issues and using limited data, the following conclusions are tentative and need to be tested by studies carried out on a larger scale.

The first research question was investigated by asking NSs to rewrite stories composed by beginning students of English. These stories had very few or no

grammatical cohesive devices and few other types of cohesive devices. NSs did not perceive any of the texts to be incoherent, lacking textuality. NSs assumed coherence and actually imposed coherence on the text by adding not only those grammatical cohesive devices which were missing in the original in obligatory contexts, but also cohesive devices which were not required grammatically. Adding these cohesive devices made implicit semantic relationships explicit. Because this discourse was in the form of simple narratives of everyday life, the NS readers were able to use their knowledge of narrative structure and of the world to recover the implicit semantic relationships between the sentences. There was reasonable consensus on what these implicit relationships were, as evidenced by the cohesive devices added by NSs. Although these devices were not always identical, they usually expressed the same type of implicit relationship (e.g. co-referentiality). Even when information was not retrievable because of insufficient control of language, NSs assumed coherence and the existence of an unexpressed semantic relationship and chose to express this relationship, ignoring contradictions in the text.

The second research question looked at the misuse of grammatical cohesive devices in NNS speech and writing and its effect on coherence and comprehensibility. Again, NSs assumed coherence and worked to find relationships in the text even where there was potential miscommunication caused by the misuse of grammatical cohesive devices, e.g. when the NNSs used the wrong form or failed to establish a referent. Communication was not usually impaired when the underlying semantic relationship was clear from the discourse context, e.g. from lexical items, especially those used as lexical cohesive devices, from the narrative schema in writing and the sequential organization in conversation, or from background knowledge about the immediate topic, or knowledge of the world in general. In several cases the underlying semantic relationships intended were not retrievable from either the discourse context or from knowledge of the world, and the misuse of a grammatical cohesive device resulted in lack of comprehension. Syntactic errors may also have contributed to incomprehensibility. Although errors involving cohesive devices did not necessarily result in lack of comprehension, native speakers expressed at times a need to work hard to understand the text. The data set was too small to make conclusions about the effect on comprehensibility of the misuse of particular types cohesive devices.

Earlier I discussed two main criticisms of Halliday and Hasan's emphasis on the role of cohesive devices in creating coherence: (1) It is not the cohesive devices themselves, but inherent semantic or pragmatic relationships between sentences that create coherence; the cohesive devices are merely explicit representations of these inherent relationships; and (2) Coherence is not created primarily by the cohesive devices but by the discourse structure and the knowledge that the reader or listener brings to the discourse. Both of these claims were supported by this study. Readers and listeners come to a text or conversation assuming the existence of underlying semantic relationships between sentences which make the discourse coherent. These relationships are communicated by several interacting

factors:

1) The discourse context:
         a) In conversation, a sequential relationship with previous discourse;
         b) In text, the frame provided by genre expectations, e.g.
                  for narrative: setting, topic continuity, sequentiality in time;
                  for expository writing: expected rhetorical structure;
2) The reader's or listener's background knowledge or knowledge of the world;
3) The lexicon and grammar (i.e. explicit cohesive devices).

Communication in both speech and writing is interactional, the result of co-operation between the participants. One aspect of this cooperation is that inter-locutors or readers will often work to create coherence in speech or writing which lacks coherence because explicit cohesive devices are missing or misused. So strong is this expectation of coherence that NS interlocutors or readers may have a false sense of confidence with NNS speech or writing. They may not perceive ambiguity where it exists and, in their attempt to create coherence too quickly where it is lacking, may not perceive the potential for miscommunication.

Another aspect of the cooperative nature of discourse is the availability of the organization of repair (Schegloff, Jefferson and Sacks 1977). In conversation, even if underlying relationships are not made explicit or are confused by incorrect cohesive devices, participants have the organization of repair as a further tool for comprehension. With written text, readers have the option of re-reading and re-organizing the discourse or the syntax, and sometimes even initiating oral repair. In both cases, however, comprehension may involve more work than the listener or reader is prepared to do.

Even though explicit cohesive devices do not seem to be necessary for comprehension of NNS speech and writing in certain genres, these explicit devices can aid NSs in processing the information in these genres. It seems that the more sources of information the listener or reader has, the less work has to be done for comprehension. Explicit cohesive devices may be seen as "effort-saving devices" (Zalewski 1993, p. 693), enabling "quick and easy" processing and more "expres-sive" communication, two of the basic ground rules for human language accord-ing to Slobin (1977, p.186).

Expository writing may need to rely more strongly on explicit cohesive de-vices than narrative or conversation because not as much information is provided by other means. Readers can approach narratives, especially simple stories of everyday life such as those about robberies or fires, with not only an enormous amount of shared knowledge of how the world works, but also with a shared story schema that seems to cross cultural boundaries, e.g. an expectation of sequentiality in time. Participants in a conversation can rely on the sequential structure and the organization of repair to provide more resources to disambiguate discourse. The abstract nature of ideas in genres such as expository writing or academic lectures does not always allow the reader or listener to make full use of a universally known

schema or general knowledge of the world. Explicit grammatical and lexical cohesive devices may therefore play a greater role in establishing coherence in such genres. Insights resulting from genre-specific studies of cohesion and coherence are therefore not necessarily generalizable to other genres.

The potentially greater role of explicit cohesive devices in certain genres also has implications for second language pedagogy: Non-academic ESL classes may need to place more weight on the acquisition of a wide range of vocabulary than on grammatical accuracy, at least in the early stages of language learning. Adults who need English to communicate basic survival needs may not need the same extensive knowledge of grammatical cohesive devices to be comprehensible, especially as they and their NS friends or co-workers develop a shared body of knowledge and a greater ability to communicate competently with each other through practice. However, ESL students who aspire to higher education will eventually need to learn when and how to use more explicit cohesive devices to communicate effectively in academic genres such as expository writing.

ACKNOWLEDGEMENTS

NOTES

[1] Halliday and Hasan seem to have deliberately constructed their example to prevent readers from making a cohesive connection between sentences by destroying any sense of topic continuity. For example, the indefinite article for the second mention of "fence," and the adverb "often," could prevent the reader from seeing the two instances of "fence" as co-referential. If the text is reconstructed to remove all barriers to topic continuity even without adding any grammatical cohesive markers, the reader is able to see this as a coherent whole: Cat is sitting on fence. Fence is made of wood. Carpenters made fence. Bought wood planks from lumber store.

[2] In this example it can be argued that knowledge of a particular culture is also necessary for participant A to correctly interpret this sequence (i.e. that 21 is the legal age to drink). However, even without this knowledge, participant A will understand that being 21 is a necessary condition for the fulfillment of the request in the first line, because of what seems to be a universal in conversational structure: that utterances following the first pair part are interpreted in light of that first pair part, either clarifying it or, as in this case, establishing the conditions necessary for deciding among alternate second pair parts.

[3] I have independent knowledge that this was, in fact, the case.

[4] Of course, participants in conversation do not always initiate repair when they perceive that an interlocutor has misunderstood a previous utterance, so this method for judging comprehensibility is not infallible.

[5] I thank Jean Wong for this data excerpt which formed part of the corpus for her PhD dissertation (Wong 1994).

[6] Marianne Celce-Murcia (personal communication) has pointed out that some NSs have no patience with errors of this type. For them, pronoun gender errors may make comprehension problematic.

[7] Christine Holten, in a personal communication, suggests that lack of coherence in this example may also be caused by the writer's assumption that the reader knows the content of the thrift store

article mentioned in the first sentence. The contrast set up by the writer is implicit and depends on knowledge the reader may not have.

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Inner Speech as Mental Rehearsal: The Case of Advanced L2 Learners

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This paper is a follow-up study on the issue of L2 inner speech as it manifests in mental rehearsal among advanced L2 learners. The purpose of the study was to find out to what extent advanced L2 learners experience inner speech as mental rehearsal and to identify some of the characteristics and functions of such inner speech. Results show that advanced L2 learners experience inner speech in the second language to a great extent and that the frequency of L2 inner speech increases with proficiency. Advanced L2 learners, however, report using less inner speech than lower level learners for certain aspects of rehearsal, such as planning texts, self- and other-evaluation, storage and retrieval, self-instruction, and language play. It is argued that inner speech in the L2 is a developmental phenomenon associated with spontaneous rehearsal in the early stages of L2 acquisition and with verbal thinking in the more advanced stages.

The problem of inner speech is central in Vygotsky's (1978, 1986) theory. As Vygotsky's and his followers' ideas have become globally recognized, inner speech has been acknowledged as a major phenomenon associated primarily with the L1. In the field of second language acquisition (SLA), however, inner speech continues to be practically uncharted territory.[1] At least two reasons can be cited to account for this lack of attention on the part of SLA researchers. First, it is possible that, for researchers working within the current prevailing SLA paradigm, Vygotsky's theories and the problems associated with them appear to be irrelevant and/or irreconcilable. A problem like inner speech, which suggests a view of mind as a predominantly sociocultural product, framed as it was within the dialectics of historical materialism in Vygotsky's writings,[2] does not seem to "fit the facts" (as Kuhn, 1970, p. 141, would put it) of SLA mainstream theory, which is ultimately concerned with the psychological mechanisms that underlie the acquisition of L2 properties as a process situated mainly in the learner's head.[3] Second, there is the problem of method. Because inner speech is covert language behavior, it is inaccessible to direct methods of observation. Vygotsky (1986) himself recognized that "the area of inner speech is one of the most difficult to investigate" (p. 226). His way of breaking the inaccessibility of inner speech was the "genetic method of experimentation" (p. 226). This method, which came to be known as "the Vygotsky method of studying inner speech" (Ushakova, 1994, p. 137), consisted of approaching inner speech through the observation and analysis of egocentric speech, in the assumption that egocentric speech is the vocalized transition between social external speech and inner covert speech. As SLA research becomes more open to nontraditional theoretical and methodological approaches, however, topics like

inner speech, rooted in sociocultural theory, may start to yield fresh new insights into second language learning. In fact, the study of inner speech can help to reconceptualize many L2 learning processes and issues. Memory, learning strategies, input-output processing, and language development are just a few of the fundamental issues where an inner speech perspective may be enlightening. Through the analysis of past and present data, I will lay out in this paper a view of inner speech as a developmental phenomenon in the L2, starting out in its early stages as spontaneous mental rehearsal of the language and blossoming in its maturity into a flexible tool for verbal thought.

As Kozulin (1986) explains, the problem of inner speech is devoted full attention twice in Vygotsky's *Thought and Language*. First, Vygotsky introduces it in the context of his disagreement with Piaget over the role and fate of egocentric speech. While Piaget regarded the typical egocentric speech of preschool children as a mere symptom of their autism and egocentrism, before the emergence of socialized speech, and denied it any essential role in intellectual development, Vygotsky viewed egocentric speech as a transitional phase between early social speech and mature inner speech and assigned it a very important function: that of planning, organizing, and directing problem-solving activity. For Vygotsky, the fact that egocentric speech tends to disappear at about school age does not mean it atrophies, as Piaget believed: it becomes inner speech. As egocentric speech loses its vocal character, the child is able to "think words" without pronouncing them (p. 230). Once attained, inner speech enables the child to carry out intrapsychically those mental operations that were first carried out interpsychically in communicative discourse with others and vocally with oneself during egocentric speech. In this theory, inner logical reflection, for example, has its origins in the social discursive practices of argumentation. As Frawley (1997) puts it, "social dialogue condenses into a private dialogue for thinking" (p. 95).

The second major treatment of inner speech in Vygotsky's *Thought and Language* is centered on his analysis of the relationship between thought and speech. For Vygotsky (1986), thought and speech, two genetically independent strands of development in the human being, come to be fused – for historical/cultural rather than biological reasons – as verbal thought, one type of thinking that is mediated by inner speech. Because inner speech is speech for oneself, it is radically different from external speech. Syntactically abbreviated and devoid of sound, inner speech can best be appreciated in its peculiar semantics, characterized by three main features: preponderance of sense over meaning (context prevailing over the stable meaning of a word), agglutination (merging words together), and influx of sense (the senses of words influencing one another). The result is "a dynamic, shifting, unstable thing, fluttering between word and thought" (Vygotsky, 1986, p. 249). Ultimately, for Vygotsky, understanding inner speech as the link between thought and word was the key to comprehending a deeper problem: that of the origin and nature of human consciousness. In the development of word, as it transits from the external sphere of socially situated events to the internal realm of

psychic experience, Vygotsky found the "historical" development of consciousness (1986, pp. 210, 256).

Elucidating the nature and function of inner speech (in a monolingual context) was a major concern throughout Vygotsky's career. One of his strongest claims was that higher mental processes are mediated by signs, that is, tools of a psychological nature (Wertsch, 1985). Inner speech serves this instrumental function. Inner speech mediates thinking, and as such it is, as Frawley states (1997), language *for* thought (not language *of* thought), a "vehicle for thinking" (p. 182). Without inner speech, it would be impossible for the mind to engage in high order psychological processes such as concept formation, voluntary attention, and logical memory (Vygotsky, 1978, 1986). As an "instrument of individual thought" (Vygotsky, 1986, p. 236), inner speech serves mental orientation, conscious reflection, and problem solving. Inner speech not only organizes conscious thought and guides action but is also instrumental in planning future behavior. Vygotsky assigned a rehearsal role to inner speech when he acknowledged that inner speech "serves as preparation for external speech—for instance, in thinking over a lecture to be given" (1986, p. 88). He considered inner speech a "mental draft," for example, when we are going to write or say something (p. 243). Succinctly, Vygotsky saw inner speech as an ideational tool with strong social, communicative roots.

Both Sokolov (1972) and Luria (1982), two of Vygotsky's followers who took up the study of inner speech, stress the role of inner speech in communication, while recognizing the social character of its origin. Sokolov (1972), for example, identifies three main functions of inner speech: the function of *semantic generalization* or the formation of general semantic complexes, the function of *semantic memorization* or fixation in memory, and a *preparatory* function for communication, or the function of mentally planning future statements. He believes "inner speech represents a psychological transformation of external speech, its 'internal projection,' arising at first as a repetition (echo) of the speech being uttered and heard, but becoming later its increasingly abbreviated reproduction in the form of verbal designs, schemes, and semantic complexes" (1972, p. 1). Luria (1982), on his part, after tracing the development of inner speech as first external speech, then fragmented external speech, then whispered speech, and finally abbreviated speech for oneself, reverses the process as inner speech is transformed into fully expanded speech production. In fact, inner speech has been identified as a concomitant of all four modes of communication: speaking, listening, reading, and writing (Beggs & Howarth, 1985; Flower, 1984; Johnson, 1984).

As an L2 researcher, my particular interest in inner speech has always been from the point of view of inner speech as the mind-language mechanism that underlies mental rehearsal, an L2 learning strategy that involves the covert practice of the L2 (Chamot, 1987; O'Malley, Chamot, Stewner-Manzanares, Russo, & Küpper, 1985; Rubin, 1987; Tarone, 1983), which has also been associated with the phenomenon first identified by Krashen (1983) as "din in the head".[4] The connection between various forms of mental rehearsal and inner speech, both from

an L1 and an L2 perspective, was first made in the literature in a nonempirical way. In 1983, Smith equated rehearsal with the usual practice of "talking to oneself" and proposed that the linguistic nature of this type of inner speech be studied. In 1987, Rohrer argued that inner speech is "the language of the mind" (p. 92), used in various mental operations, one of which is rehearsal. In 1990, Murphey published an article reviewing the studies conducted on the "din in the head" (Bedford, 1985; Guerrero, 1987; Krashen, 1983; Parr & Krashen, 1986) and linking this phenomenon to Vygotsky's concept of inner speech: "What [Vygotsky] calls inner speech may have a strong connection to what is now being called the Din" (Murphey, 1990, p. 55). In a few words, then, the relationship between inner speech and mental rehearsal appears to be one in which inner speech is a broad language function covering a wide range of mental operations, among which is rehearsal, the covert practice of language that is common in L2 learning.

In order to empirically investigate inner speech in the L2, I conducted a study (Guerrero 1990/1991, 1994) on the nature of inner speech during mental rehearsal of the L2 as it occurred across three proficiency levels (low, intermediate, and high) of ESL college learners. One of my objectives was to gather evidence that would cast light on the question of whether mental rehearsal disappears or wanes with proficiency, a question on which there was somewhat contradictory evidence in the literature. I found that it increased with proficiency. Left out from the sample of that study was a group of still higher level learners, those who could be considered "advanced" ESL because of their near-native ability in English. By targeting this latter group of learners, my purpose in the present study is to find out to what extent very advanced L2 learners experience inner speech as mental rehearsal and to identify some of the characteristics and functions of such inner speech.

REVIEW OF STUDIES ON L2 INNER SPEECH AS MENTAL REHEARSAL

The problem of whether very advanced L2 learners experience inner speech as mental rehearsal has a somewhat conflicting trajectory in the literature. It may thus be useful to put this problem into a historical perspective. Mental rehearsal was first singled out as an SLA phenomenon by Krashen (1983), who, calling it "the din in the head," defined it as "an involuntary rehearsal of second language words, sounds, and phrases" (p. 41). This phenomenon had been reported by Barber (1980) as a personal foreign language (FL) experience she had had while traveling in Europe. Krashen (1983) hypothesized that "the Din is a result of stimulation of the Language Acquisition Device" (p. 43), that it is triggered by comprehensible input of the i + 1 variety, and that it will not occur in very advanced learners "since they will receive less input containing i + 1, having acquired most of the language" (p. 43).

Bedford (1985) was the first to test Krashen's Din Hypothesis empirically

(see Table 1 for a summary of empirical studies). On the basis of survey data provided by 160 L2 college and FL adult learners, Bedford was able to confirm that "spontaneous playback of the second language," as he called the Din, was a widespread phenomenon rather than a process restricted to a few individuals. Bedford found no difference by amount of previous study, thus being unable to support Krashen's prediction that the Din would disappear with more proficiency. Bedford clarified, however, that none of the subjects in his sample could be described as a "very advanced acquirer" (p. 283).

Table 1: Studies on L2 Inner Speech as Mental Rehearsal

Study	Description of phenomenon	Number and type of participants	Percentage of responses	Increase/Decrease with proficiency
Bedford (1985)	spontaneous playback of the L2 (Din or spontaneouse rehearsal)	160 L2 college and FL adults	68 *sometimes* to *always*	no difference by amount of previous study
Parr & Krashen (1968)	involuntary rehearsal of the L2 (a "din in the head" as described by Barber, 1980)	150 FL high school 216 FL college 28 L2 very advanced adults	78 Yes 69 Yes 10 Yes	signficant decrease
Guerrero (1987)	mental rehearsal of the L2 (Din)	52 ESL college (3 levels of proficiency)	79 *sometimes* to *always*	slight increase, but not significant
Doran (1989)	mental rehearsal of the L2 (Din)	278 ESL high school	92 *sometimes* to *always*	
Guerrero (1990/1991)	inner speech during mental rehearsal of the L2	426 ESL college (3 levels of proficiency)	84 *sometimes* to *always*	significant increase with proficiency
Lantolf (1997)	language play (private speech, subvocal rehearsal, inner speech)	86 FL college, elementary 28 FL college, advanced 42 ESL college, more advanced	51 *often & very often* 90 *often & very often* 83 *often & very often*	decrease with proficiency
McQuillan & Rodrigo (1995)	involuntary rehearsal of the L2 (Din) and a "reading din"	35 FL college	80 (Din) *sometimes* to *very frequently* 57 ("reading din") *sometimes* to *very frequently*	
Sevilla (1996)	involuntary rehearsal of the L2 (Din)	40 elementary school formerly LEP, now FEP	57.5 Yes 35 Yes 80 Yes	57.5% had experienced the Din; 100% no longer experienced the Din

Note: LEP = limited English proficient; FEP = fully English proficient

In 1987, I replicated Bedford's study with a sample of 52 ESL college students on three levels of proficiency (Guerrero, 1987). Again, I confirmed that the Din was a well-known phenomenon for the language learners, 79% admitting to having experienced it. Moreover, I found that there was no difference in frequency of Din activity among the three levels, and that, although statistically insignificant, there was a slight increase with proficiency. Thus, I concluded that mental rehearsal could occur at any moment during acquisition and that, contrary to Krashen's prediction, even very advanced learners mentally rehearse. Later, Doran (1989) replicated Bedford's and my study with a population of high school ESL students in Puerto Rico and found that 92% percent of them had experienced the Din in English at least *sometimes*.

In 1986, Parr and Krashen published the results of two studies testing Krashen's Din Hypothesis. The first study tested the prediction that the Din is a widespread phenomenon. The data obtained from 150 high school students of Spanish and 216 college students of Spanish confirmed the prediction: 78% of the high school students and 69% of the college students answered affirmatively the question "Have you experienced the 'Din in the Head'?" after reading Barber's (1980) description of the phenomenon. The second study, however, supported the claim that advanced performers do not experience involuntary rehearsal. In this study, the data came from a group of 28 "advanced graduate students and faculty in foreign language education who had acquired their second language as adults" (p. 276). Only 10% percent (3 subjects) of these speakers answered "Yes" to whether they had experienced the Din. There are a few problems with these data, however. Although the authors claim these were "advanced performers of the second language" (p. 276), the proficiency level of the participants in either study was not measured in any systematic way. Moreover, the "advanced performers" were interviewed orally rather than surveyed through a questionnaire, as was done in the first study. Krashen explained the discrepancy between these results and Bedford's (1985) and Guerrero's (1987) saying that maybe the subjects in his study "were even more advanced, professors and teachers of the language" (personal communication, March 14, 1988).

In1990 I conducted a study on mental rehearsal of the L2 as a manifestation of inner speech. In this empirical investigation (Guerrero 1990/1991, 1994), I not only set out to explore the nature—in terms of form and functions—of inner speech during mental rehearsal of the L2 but also examined whether there were any differences among students at three levels of ESL proficiency—low, intermediate, and high. Using questionnaire data from 426 ESL college students, I was able to confirm that 84% of the participants had experienced inner speech as described in the study (including those who answered *sometimes*, *often*, or *always*). The study confirmed several linguistic characteristics of L2 inner speech: It was sonorous in the mind, despite being inaudible to outsiders; it was abbreviated in structure, though it could become expanded during mental dialogue; it often contained lexical items the students wanted to imitate or remember; and it was usually meaningful, though

sometimes unfamiliar words had to be processed. Inner speech was found to serve eight functional roles: ideational (to clarify thought), mnemonic (to store and re- trieve information in memory), textual (to create, organize, and experiment with the form of oral or written texts), instructional (to self-teach the language), evalu- ative (to self- or other-evaluate language use), affective (to derive self-satisfaction and acquire self-confidence), interpersonal (to imagine conversations with oth- ers), and intrapersonal (to talk to oneself).

As to the differences among the three proficiency samples, a statistically significant positive correlation between inner speech and proficiency was found; in other words, as the proficiency level increased, so did the frequency of inner speech in terms of percentage of Yes (*sometimes*, *often*, or *always*) responses: low level, 75%; intermediate level, 89%; high level, 90%. These three levels repre- sented the various degrees of proficiency evidenced by the majority of the ESL population (native speakers of Spanish) attending Inter American University of Puerto Rico.[5] They had been selected on the basis of their incoming college en- trance examination scores as determined by the ESLAT, a College Board ESL proficiency test which ranges from 200 to 800. Scores for the low level students were <400; intermediate level, 400-499; and high level, 500-599. Outside the sample, and not surveyed in my study, was a small group of very advanced ESL students who, because of their very high scores of 600-800 on the ESLAT, were grouped in regular English courses with an assorted and very small population of native speakers of English and English-Spanish bilinguals.

Recently, Lantolf (1997) reported the findings of a study on "language play" in the L2, a type of private speech which he associates with the Din phenomenon, subvocal rehearsal, and inner speech. Lantolf's language play phenomenon in- cludes both the covert, silent variety of inner speech as well as the more overt, audible manifestations of private speech. Some examples of language play stated in his questionnaire description of the phenomenon are: "talking out loud to your- self in Spanish; repeating phrases to yourself silently; making up sentences or words in Spanish; imitating to yourself sounds in Spanish; [and] having random snatches of Spanish pop into your head" (1997, p. 11). The questionnaire used in the study, modeled on Bedford's (1985), asked students to identify whether they played with Spanish in a variety of situations. Participants were 156 college stu- dents, distributed as follows: 86 were enrolled in first and second year classes of Spanish as a foreign language (SFL), 28 were enrolled in third and fourth year SFL classes, and 42 were enrolled in advanced ESL classes. Although placement pro- cedures and program requirements differed between the SFL and the ESL stu- dents, making proficiency comparisons difficult, Lantolf estimated that the ESL students' level of proficiency in English was higher than that of the SFL students in Spanish. Splitting his sample in three proficiency levels (SFL elementary, SFL advanced, and ESL), Lantolf was able to observe that frequency of language play decreased as the level of the L2 increased.

Lantolf (1997) argues that language play, as a private speech function, has

an important role in L2 learning. He associates L2 language play with Vygotsky's view of play in general. For Vygotsky, play creates a zone of proximal development where children can act at a level beyond their current level of development. Language play would have the same effect for L2 learners: It would allow them to push their language development forward as they mentally experiment with and operate on things they notice in both input and output. Basing himself on MacWhinney's (1985) dialectic competition model of language learning, Lantolf further speculates that "language play is the activity of regaining lost equilibrium" (p. 16). An L2 learner would lose equilibrium when confronted with, for example, an L2 form (antithesis) that does not match his/her own production (thesis) of the L2. To overcome this conflict, the learner will try to provide a synthesis and in this process will resort to language play, a mechanism which allows "comparison of the old system with the new evidence" (p. 17). Why do advanced learners play less with the L2? Lantolf says: "As learners become more advanced, the potential conflict between their system and the target language system decreases, thereby reducing the chances of the learner being thrown into a state of disequilibrium. Consequently, the need for advanced learners to engage in language play . . . is greatly diminished or eliminated altogether" (p. 17).

Two additional studies have been conducted on the Din. One is by McQuillan & Rodrigo (1995), who wanted to find out whether FL learners experience the Din after reading. Thirty-five college students of Spanish as a FL answered a revised version of Bedford's (1985) questionnaire. Eighty percent of the participants answered affirmatively (*sometimes* to *very frequently*) to whether they had experienced the Din in general and 57% to whether they had experienced it after reading. McQuillan & Rodrigo's conclusion is that both listening and reading are important sources of input for the Din to take place.[6] The other study, by Sevilla (1996), involves children. Sevilla selected 40 FEP (fully English proficient) elementary school learners who had been LEP (limited English proficient). Whereas 57.5% of these children reported having experienced the Din in the past, 100% of them said they no longer experienced it at the time they were interviewed. There were also differences between the children who were US born and foreign born. Only 35% of those who were US born reported having experienced it while 80% of the foreign born recognized the phenomenon as something they had had. Sevilla's findings suggest that as the children approached native-like competence they no longer experienced the Din.

THE PRESENT STUDY

A review of the pertinent studies has revealed that the case regarding advanced learners is still not closed. As Table 1 shows, there are some discrepant findings in terms of inner speech as rehearsal among the most advanced learners in the different studies. While in some studies (Bedford, 1985; Guerrero, 1987; Guerrero, 1990/1991, 1994) mental rehearsal of the L2 increases—or does not

disappear—with proficiency, in other studies (Parr & Krashen, 1986; Lantolf, 1997; Sevilla, 1996) it tends to decrease or disappear. It is also apparent that the various researchers, while tapping in a very general way a single phenomenon, have actually observed each in his or her own way slightly different manifestations of it. Furthermore, there is too much variation in the samples and the populations they represent, measurements of linguistic ability are nonexistent or not consistent throughout the studies, and comparisons among proficiency levels are therefore problematic. To overcome these shortcomings, I conducted a follow-up investigation, drawing evidence from that unsampled group of very advanced learners I had left aside in my earlier study (Guerrero, 1990/1991; 1994). This would provide a means of comparison with lower level groups while ensuring some internal consistency in the linguistic ability measurement, in the description of the phenomenon presented to the participants, and in the methodology used.

The research questions for the present study were:

(1) To what extent do advanced L2 learners experience inner speech as they mentally rehearse in the second language?

(2) How do advanced L2 learners compare with less proficient learners of the second language in certain aspects of their inner speech used for rehearsal?

METHOD

Instrument

The same questionnaire used in Guerrero (1990/1991) was selected as the data collection method in order to ensure consistency with the previous study. The questionnaire was subject to a few modifications (see new version of Questionnaire in the Appendix). The introduction, which explains the purpose of the questionnaire and defines inner speech and metal rehearsal, and Part I, which elicits biographical information from the participants, were left unchanged. In Part II, seven questions that were not pertinent to the purposes of the present study were deleted.[7] Twelve questions addressing some new aspects were added: One (#2) sought to confirm whether the participants still experienced inner speech. This was added immediately after question 1, which queried students as to the extent with which they had experienced inner speech. Four questions (#29-32) were introduced to find out if the participants "played" with their inner speech in a variety of ways. This was the aspect of inner speech that Lantolf (1997) had focused on in his study. Seven questions (#33-39) were added to investigate the affective role of inner speech. This function of inner speech had been reported by the participants in my earlier study (Guerrero, 1990/1991, 1994) during the interviews but had not been measured through a questionnaire. As a consequence of this adding and deleting, items in the original questionnaire were moved around so that the original 35-item questionnaire resulted in a slightly different 40-item instrument. The questionnaire was in two versions—English and Spanish—for the students to choose the one they felt most comfortable with at the moment of an-

swering. Students were asked to give their responses on a five-point Likert scale ranging from *never* to *always*.

As it stands, the present 40-item questionnaire is therefore aimed to discover (1) the extent to which advanced L2 learners experience inner speech as they mentally rehearse in the second language (items 1 and 2) and (2) how advanced L2 learners compare with less proficient ones in certain aspects of their inner speech, in particular, its structural complexity (items 3-6), phonology (items 7, 14, and 15), meaningfulness (item 13), extent to which learners look up unfamiliar words that come to their minds (item 16), extent to which inner speech is related (item 25) or unrelated (item 24) to the English class, extent to which the learners' inner speech in English is mixed with Spanish (item 40), and its various functions: *mnemonic* (items 8, 11, and 12), *instructional* (items 9, 10, and 22), *evaluative* (items 20, 21, 23, and 26), *textual* (items 17, 18, and 19), *interpersonal* (item 27), *intrapersonal* (item 28), *playful* (items 29-32), and *affective* (items 33-39).

The instrument used in the present study has undergone a long process of validation, which started with a broad elicitation instrument designed to draw learners' explicit responses about their experience with inner speech in English. The process, best described in Guerrero (1990/1991, pp. 47-51), included several attempts at refining the instrument with the aid of supporting literature, a pilot study, learners' feedback, and reading by experts. The present modifications of the questionnaire are an additional attempt to adjust the instrument to the purposes of this study. To assess the reliability of the questionnaire, the data were submitted to the Cronbach alpha test, a measure of internal consistency recommended by Oxford (1996) for language strategies questionnaires. The resulting Cronbach α coefficient of .90 (n = 64) was considered adequate.

The use of a questionnaire to self-assess a phenomenon as elusive as inner speech may be considered a limitation of this study. Self-report data constitute one way of gaining access into covert language behavior, but several drawbacks are involved, namely, potential problems related to memory (unreliability, inaccessibility, incompleteness) and veracity (how sincere the participants' answers were), as discussed in Cohen (1987) and Ericsson & Simon (1980). In order to minimize the effect of these factors, the questionnaire instructions stressed the need for the students to be as truthful and precise as possible. Still, as in all cases in which mentalistic data are used, the results of this study should be taken for what they represent: a collection of the participants' reported perception of their own mental processes.

Participants

The questionnaire was administered to 81 students enrolled in advanced English courses (ECSG 2311, 2312, and 2313) at Inter American University of Puerto Rico, Metropolitan Campus. Each of these courses is worth 3 credits, and students who are placed on the advanced level have to take these three courses to fulfill their 9 credit English requirement. To be placed on this advanced level,

students must have a score of above 600 on the ESLAT (an ESL version of the College Board's entrance examination which ranges from 200 to 800). Some students who are considered native speakers of English are also placed on this level. Most students on this level are fully bilingual, though few could be considered native bilinguals (NB; raised and equally fluent in two languages). The teaching of English in these courses does not have an ESL approach: Throughout the series, students develop writing skills in different genres, do research projects, and read literature, much as they would in regular college English courses in the U.S. The population in these courses is not only highly competent in the written skills but also very fluent orally. Classes are conducted entirely in English. Students usually take these courses in a sequence.

Of the 81 collected responses, 13 were not counted as data because they were incomplete or because the students' ESLAT scores could not be verified or were lower than 600. Within the remaining sample, there were 46 L2 students (those who answered "Spanish" to the question "Which do you consider to be your first language?"), 18 L1 students (those who answered "English" to the same question), and 4 NB students (those who answered both "English" and "Spanish"). There were 36 females and 32 males in the sample.[8] The students' age mean was: L2 students, 21; L1 students, 24; and NB students, 27. The College Board ESLAT mean was 643 for the L2 students, 662 for the L1 students, and 690 for the NB students. The analysis of responses will focus mainly on the L2 students (n = 46), which were the targeted group for this research.

Data Collection Procedures

Questionnaires were distributed among the available sections of advanced English courses. Students were given the option of answering the questionnaire in English or Spanish, as they preferred. The names of the students who had taken the questionnaire were then sent to the Admissions Office so that their ESLAT scores could be verified.

Data Analysis

Responses to the questionnaire were entered in the computer and analyzed using the SPSS program. For computing purposes, responses on the Likert scale were given numerical values: never = 0, almost never = 1, sometimes = 2, often = 3, always = 4. Descriptive and inferential statistics were applied. The descriptive statistics consisted of frequencies, percentages, modes, and medians. The inferential statistics included the one-sample chi-square test applied to each item of the questionnaire, the multiple-sample chi-square test to find differences among the subgroups, and the McNemar test for related samples to ascertain the difference in responses between item 1 and item 2 within the L2 group. In order to simplify the data and because there were too few students to fill cells with a >5 frequency as is required for chi-square tests, the five categories on the Likert scale were collapsed into two: No (*never* and *almost never*) and Yes (*sometimes, often, always*). This

procedure had been used before by Bedford (1985), Guerrero (1987), Guerrero (1990/1991, 1994), and Lantolf (1997). The alpha level of statistical significance for all tests was set at <.05.

The figures obtained for the present sample were compared with those of my previous study (Guerrero 1990/1991, 1994) employing three lower levels of ESL proficiency and with some of Lantolf's (1997) reported figures. Some comparisons were also made between the L2 group (n = 46) and the L1 group (n = 18) within the present sample. Unfortunately, the NB group (n = 4) was too small to warrant any comparison.

RESULTS AND DISCUSSION

Research Question 1: To what extent do advanced L2 learners experience inner speech as they mentally rehearse in the second language?

Item 1 of the questionnaire (Have you had inner speech in English?) was answered affirmatively (*sometimes* to *always*) by 98% of the students in the L2 group. The difference between No and Yes answers was statistically significant [χ^2 (1, N = 46) = 22.260, p<.000]. These figures are higher than those obtained for lower proficiency students (all L2 learners) in the previous study (Guerrero, 1990/1991, 1994), so it would seem that inner speech used for mental rehearsal increases with proficiency in the language (see Table 2). For the L1 learners (n = 18), inner speech was also very frequent; actually their percentage of Yes responses was distributed as follows: 17% *sometimes*, 22% *often*, and 56% *always*. In contrast, for the L2 students (n = 46), the distribution was 52% *sometimes*, 24% *often*, and 22% *always*. Whereas the L2 group had a median of 2 (*sometimes*) for Yes

**Table 2: Frequency of Inner Speech as Mental Rehearsal
across Proficiency Levels**

	Guerrero (1990/1991, 1994)			Present sample
	Low ESL n = 161	Intermediate ESL n = 192	High ESL n = 73	Advanced ESL n = 46
ESLAT scores	<--399	400-499	500-599	600-->
Item 1: Have you had inner speech in English?				
	75	89	90	98
Item 2: Do you still experience inner speech in English?				
	-	-	-	91

Note: ESLAT = English as a Second Language Achievement Test

responses, the L1 group had a median of 4 (*always*). The L1 students thus seemed
to experience inner speech with greater frequency than the L2 students; this differ-
ence, however, was statistically nonsignificant.[9] This would confirm that inner
speech as it occurs during mental rehearsal is a very widespread phenomenon, not
only among advanced L2 learners but also among native English students.

Item 2 (Do you still experience inner speech in English?) had a smaller per-
centage of Yes responses than Item 1 (see Table 2), but the difference, as ascer-
tained by the McNemar test, was nonsignificant. These figures cannot be com-
pared with those of lower level groups because this was a new question introduced
in this questionnaire. What these results indicate is that still at the present moment
of taking the questionnaire the students' frequency of inner speech was very high,
although not as high as the total frequency of inner speech experienced up to the
present. This question was introduced to ascertain that the students were not merely
reporting the frequency of a past experience (as item 1 could be interpreted). Re-
sponses to item 2 confirm that inner speech was still a very present and very fre-
quent phenomenon for the students.

If only these two questions were taken as evidence of increase or decrease of
inner speech as mental rehearsal across proficiency levels, there would be basis
for rejecting the hypothesis that mental rehearsal of the L2 disappears with profi-
ciency. But further analysis of the data is necessary before any conclusive state-
ment can be made. It is thus necessary to focus on specific groups of questions in
order to have a more accurate picture of what the data show.

**Research Question 2: How do advanced L2 learners compare with less
proficient learners of the second language in certain aspects of their inner
speech used for rehearsal?**

The analysis in this section will focus on four groups of items: those that
showed increase when the advanced level was compared to lower levels, those
that showed decrease, those that measured the aspect of language play, and those
that measured the affective function of inner speech.

Aspects of inner speech that showed increase. (See Table 3.) Items 3 to 6,
which test the structural complexity of inner speech in terms of the extent to which
it consists of words, phrases, sentences, and conversations/dialogues, showed in-
crease in comparison with figures obtained for the lower levels. This tendency
was also observed for the L1 group in the present sample.[10] The increase in fre-
quency of sentences and conversations/dialogues had been statistically significant
among the lower levels in the previous study. The trend toward more complex
syntactic and discourse inner speech structures as proficiency increases is thus
confirmed. Although more proficient learners are capable of more complex and
elaborate inner speech structures than lower learners, words and phrases, how-
ever, continue to be more frequent than more complex structures, just as they were
within the lower groups. This finding supports Vygotsky's (1986) hypothesis that
the predominant structural characteristic of inner speech is reduction (or abbrevia-

tion).

Item 7, which refers to the phonological nature of inner speech, also produced an increase (see Table 3). This increase had been significant among the lower levels in the previous study, and again the upward trend continues, indicating that as proficiency in English increases, so does the likelihood of hearing that language in the mind. The L1 students in the present sample reported 100% affirmative responses for this item. This finding confirms the definite sonority of inner speech in the mind, even though it is overtly soundless, as Sokolov (1972) pointed out. The sonorous nature of inner speech results from auditory memory being activated while motor speech production is inhibited. Because more of the L2 is stored in auditory memory among advanced L2 learners, their chances of hearing the sounds of that language in the mind are greater. Similarly, item 14 (Do you hear in your mind voices of other people in English?), which refers to the occasional polyphonic nature of inner speech (Trimbur, 1987), yielded an increase, though very small. In comparison, the L1 learners in the present sample had a higher percentage of affirmative responses (L2 learners: 60%, L1 learners: 72%), a finding which suggests this phenomenon is definitely not restricted to L2 learners.[11]

In item 10 (When you mentally rehearse, do you try to make sentences with certain words?), the increase is small when compared to lower levels (see Table 3). This finding, however, suggests that even very advanced L2 learners use this self-instructional strategy for learning the L2. Curiously, the L1 students reported 89% affirmative responses for this item, an even higher percentage than for any of the L2 levels.

Item 13 (When you mentally rehearse, do your thoughts in English make sense?) confirms   what had been found in the previous study, namely, that with more proficiency in the language, inner speech will become more and more meaningful (see Table 3). One of Krashen's (1983) speculations was that the Din (the involuntary rehearsal of the L2) was set off by comprehensible input, which, as the hypothesis goes, has i + 1, structures that are beyond the learner's grasp, so that actually comprehensible input is really incomprehensible to some extent. This led Krashen to speculate that the Din would disappear with proficiency: As there is less i + 1 to grapple with, so is there less Din, less rehearsal. What the present study shows is that, as proficiency increases, inner speech does seem to deal with less incomprehensible language but that it does not disappear. Rather, as proficiency in the L2 develops, inner speech appears to function less and less as an instrument for dealing with what is incomprehensible in the language and more and more as a tool for organizing and clarifying thought. In other words, rehearsal as an inner speech activity does not die out: Its functions change. It is therefore not surprising that, for the L1 group in the present sample, item 13 yielded 100% of affirmative responses.

Item 24 (Do you catch yourself thinking in English about things not related to your English class?) reveals quite a major increase (see Table 3) for the ad-

**Table 3: Aspects of Inner Speech as Mental Rehearsal
that Increased with Proficiency**

Item	Guerrero (1990/1991, 1994)	Present sample
	Low/Int./High Mean	Advanced
3. Is your inner speech made up of words?	86	89
4. Is your inner speech made up of phrases?	79*	87
5. Is your inner speech made up of sentences?	70*	85
6. Is your inner speech made up of conversations or dialogues?	53*	72
7. Can you "hear" the sounds of English in your mind?	86*	91
10. When you mentally rehearse, do you try to make sentences with certain words?	81	85
13. When you mentally rehearse, do your thoughts in English make sense?	95*	98
14. Do you hear in your mind voices of other people in English?	58	60
24. Do you catch yourself thinking in English about things not related to your English class?	63*	89
27. Do you imagine dialogues or conversations with other people in English?	69*	76
28. Do you talk to yourself in English?	62*	80
40. Is your inner speech in English mixed with Spanish?	69*	76

Note: Figures are for percentages of Yes (*sometimes* to *always*) responses.
Low/Int./High Mean = mean percentage for low, intermediate, and high proficiency levels. *Differences among low, intermediate, and high levels were statistically significant.

vanced learners. It seems that as learners reach very high levels of knowledge of the L2 and make more natural use of it, inner speech becomes a very important alternative tool for thinking in the other language about all kinds of things, not just things associated with their English class. The same percentage (89%) of Yes responses was observed for the L1 group in this study. Consistent with these results, item 25 (Is your inner speech related to your English class?) went down in frequency for the advanced L2 learners, as will be seen in Table 4.

Item 27 (Do you imagine dialogues or conversations with other people in English?) and item 28 (Do you talk to yourself in English?) refer respectively to the interpersonal and intrapersonal roles of inner speech. As can be seen in Table 3, the data confirm the upward trend found in the previous study. The interpersonal and intrapersonal roles are uses of inner speech that are frequently reported by L1 speakers (Cunningham, 1989; Honeycutt, Zagacki, & Edwards, 1989; Smith, 1983) so it is no surprise that advanced L2 learners report a high frequency of them, too. In fact, the L1 students in the present study reported even higher frequencies than the advanced L2 students (item 27: 83%, item 28: 94%). Intrapersonal communication, either directed to imagined others or to the self, can only occur when the individual has achieved the capacity for self-consciousness and self-awareness. In Vygotsky's theory, inner speech is the tool which facilitates the "higher intellectual functions, whose main features are reflective awareness and deliberate control" (1986, p. 166). Inner speech is thus an important mediator of self-consciousness among adults (Morin & Everett, 1990; Siegrist, 1995).[12] For adult learners, who are already capable of exercising self-consciousness in their own language, the L2—as this study shows—becomes an alternative cognitive tool for self-awareness and reflection.

Item 40 (Is your inner speech in English mixed with Spanish?) shows an increase when compared with the lower levels (see Table 3). It is possible to see in the mixed English-Spanish nature of the participants' inner speech a reflection of their growing bilingual mind, one which strategically avails itself of two languages, as the need, situation, or context arises. The L1 group in this study, however, reported a lower frequency (61%) in their bilingual nature of inner speech, possibly because their knowledge of Spanish was more limited than for the L2 group. At any rate, because L2 adult learners have already developed inner speech in their L1, it may be very difficult, as Ushakova (1994) claims, to eliminate the influence of the L1 on L2 inner speech.

Aspects of inner speech that showed decrease. (See Table 4.) As determined in the previous study (Guerrero, 1990/1991, 1994), inner speech as mental rehearsal has many functions. One of these is the evaluative role, that is, the use of inner speech to assess or correct the learner's own knowledge of the L2 and that of others. The present data show that all the items that tapped the evaluative role (#19, 20, 21, 23, 26) went down. It is apparent that, as students become more confident about their language knowledge, they become less concerned with correcting and monitoring their own language. Interestingly, the use of inner speech

Table 4: Aspects of Inner Speech as Mental Rehearsal
that Decreased with Proficiency

Item	Guerrero (1990/1991, 1994) Low/Int./High Mean	Present sample Advanced
8. When you mentally rehearse, do you repeat words you want to learn?	96	83
9. When you mentally rehearse, do you try to imitate the pronunciation of words you have learned?	96	80
11. When you mentally rehearse, do you try to recall words you have learned?	98	80
12. When you mentally rehearse, do words with meanings you do not know well come to your mind?	85	72
15. Do you repeat aloud any of the words of that inner speech when you are alone?	73	59
16. Do you look up in a book or dictionary the meaning of English words that come to your mind?	62	61
17. If you have to talk to someone in English or you have an oral presentation, do you mentally rehearse what you are going to say?	92	85
18. If you have to write something in English, do you rehearse first in your mind what you are going to write?	93	83
19. Do you ever think how you would say or write something in English, even if you are not going to use it?	83	76
20. Do you try to correct the pronunciation of words in your mind?	94	83
21. Do you try to correct the grammar errors when you mentally rehearse in English?	77*	72
22. Do you try to apply the grammar rules you have learned to your inner speech in English?	76	67
23. When you hear other people speaking English, do you mentally evaluate how those people use the langauge?	90	85

Table 4 (continued)

Item	Guerrero (1990/1991, 1994)	Present sample
	Low/Int./High Mean	Advanced
25. Is your inner speech in English related to your English class?	77	70
26. When your English teacher asks a question in class, do you answer it in your mind even though you are not called to answer?	97	94

*Differences among low, intermediate, and high ESL levels were statistically significant.

to evaluate other people's language is a little higher than using inner speech for self-evaluation. Item 26 (When your English teacher asks a question in class, do you answer it in your mind even though you are not called to answer?) remains high, in spite of a very small reduction. My interpretation is that this is a general cognitive strategy characteristic of classroom settings, probably used by most students regardless of the subject matter being taught.[13]

Results for item 16 show a very slight decrease in the frequency with which advanced learners use the strategy of looking up in a book or dictionary the meaning of unknown words that come into their minds. In contrast, items 17 and 18, which address the textual function of inner speech, that is, its use in mentally practicing a text—oral or written—before delivering it, showed a considerable reduction. These items had obtained very high percentages in the previous study (item 17: 92%; item 18: 93%). My interpretation for both item 17 and item 18, that is, rehearsing texts for future oral and written production, is the same as for the evaluative items: The more confident the learners are about their language abilities, the less they practice ahead of time.

A great reduction was observed in items 8, 9, 11, 12, and 22 (see Table 4). These items address basically two roles: the mnemonic role (items 8, 11, and 12), that is, inner speech as an instrument for the storage and retrieval of language, and the instructional role (items 9 and 22), that is, inner speech as a tool for self-teaching the language. All these items refer to very typical behaviors associated with language rehearsal. As can be seen in Table 4, many of these were extremely high in the previous study, for example, items 8 and 11, which have very important mnemonic functions.

The importance of mental rehearsal as an aid for long-term retention cannot be underestimated. Rehearsal (both rote and elaborative) in short-term (working) memory has for years been associated with long term retention (see review of

literature in Guerrero, 1987). Recent studies stress the importance of rehearsal for long-term retention of foreign vocabulary (Ellis & Sinclair, 1996; Service, 1992; Wang, Thomas, Inzana, & Primicerio, 1993). A study by Service (1992) highlights the role that working memory plays in FL acquisition. According to Service, working memory consists of the central executive, a system that organizes information from long term memory, and two subsystems, the articulatory loop, which handles verbal oral material, and the visuo-spatial sketchpad, which deals with visual images. The articulatory loop not only holds phonological input but also functions as an active articulatory rehearsal process. This process is activated when learning FL vocabulary and is crucial for long-term retention. It should be observed that in the present study, all the items tapping the mnemonic role (#8, 11, 12) have to do with words, that is, with vocabulary. In addition, Service (1992), mentions that words that sound unfamiliar are more difficult to keep in the phonological store and that "a number of rehearsal cycles might be necessary to establish an association between form and meaning, or just to strengthen the distinctiveness of the form" (p. 45). Service may very well be offering here an explanation for the phenomenon Krashen called "din in the head." In my study of the Din (Guerrero, 1987), I pointed out the connections between this phenomenon and what psychologists refer to as spontaneous recall, rote or maintenance rehearsal, and elaborative rehearsal.[14]

Furthermore, Ellis and Sinclair (1996) have found that "short-term repetition of FL utterances allows the consolidation of long-term representation of words and sequences" (p. 246). The authors believe that "intrinsic phonological memory skills may influence the learning of new words . . . . This is true for foreign as well as for native language. The novice FL learner comes to the task with a capacity for repeating native words" (p. 244). The fact that new word repetition is not restricted to novice FL or L2 learners and can even be found among native speakers, as observed by Ellis and Sinclair, is attested by the findings of the present study, which show an 83% among the L2 learners and an 89% of affirmative responses among the L1 group to item 8 (When you mentally rehearse, do you repeat words you want to learn?). The considerable reduction in frequency that occurs in terms of the mnemonic role of inner speech, however, when advanced learners are compared to lower proficiency groups (as indicated by items 8, 11, and 12 in Table 4) is an important finding, suggesting that the need to rehearse new or difficult vocabulary is smaller as fewer words result unfamiliar to the learner with increased knowledge of the language and that the processes of storing and retrieving have acquired a greater degree of automaticity.

The aspect of language play. Several of the items that showed decrease (#8, 9, 11, 12, 15) are very similar to Lantolf's (1997) examples of language play (see p. 33 in this paper). Lantolf had found a reduced use of language play among the more advanced learners. The data in the present study are thus consistent with Lantolf's (1997) findings. His explanation of why advanced L2 learners play less with the L2 is a plausible one: Advanced L2 learners play less with the L2 because

discrepancies between the learners' internal systems and the external models are greatly reduced, and so is the learners' need to resolve conflicts through internal language play. In other words, the need to create an inner zone of proximal development through language play greatly diminishes among advanced learners, just as play is no longer crucial for children's development as they reach a more mature age.

Within the language play items, number 15 (Do you repeat aloud any of the words of that inner speech when you are alone?) specifically refers to private speech, that is, speech to oneself which is vocalized. Both Lantolf's and the present data thus suggest that private "audible" speech decreases with proficiency, although it does not disappear altogether. This finding is consistent with Vygotsky's hypothesis that egocentric speech becomes less frequent as it turns into inner speech. In this view, as human beings grow, they become increasingly self-regulated through the medium of inner speech, though access to private speech, that is, actually vocalizing the language, is always possible, even for adults, as a mechanism for regaining control, particularly when facing difficult tasks. (See Frawley & Lantolf, 1985, and Lantolf & Frawley, 1984, on the principle of "continuous access" to ontogenetically prior forms of control among L2 learners.)

The above findings are also very consistent with the results shown by the new items included in this questionnaire on language play (#29, 30, 31, 32) (see Table 5). Although these are new items and there is no basis for comparison with lower proficiency learners, it is plain that the percentages of affirmative responses for these items are lower than for all of the other inner speech functions.[15] Actually, frequencies tend to cluster around the lower categories, as indicated by the corresponding modes and medians. It should be pointed out that what is measured

Table 5: Inner Speech as Language Play
among Advanced L2 Students (n = 46)

Item	Categories/Values					No	Yes	Mode	Median
	0	1	2	3	4				
Do you "play" with your inner speech in English, for example . . . 29. do you make up rhymes?	23.9	26.1	17.4	21.7	10.9	50	50	1	1.5
30. do you invent funny or original combinations?	23.9	23.9	28.3	23.9	-	48	52	2	2
31. do you invent your own words?	30.4	30.4	19.6	17.4	2.2	61	39	0,1	1
32. do you experiment with the order of words?	19.6	28.3	23.9	26.1	2.2	48	52	1	2

Note: Figures are for percentages of responses. Values stand for the following categories: *never* (0), *almost never* (1), *sometimes* (2), *often* (3), *always* (4). No = categories *never* and *almost never*. Yes = categories *sometimes*, *often*, and *always*.

in these items are very creative aspects, very "playful" aspects of the language, perhaps even more so than the aspects that Lantolf (1997) included in his questionnaire in language play.

The affective function of inner speech. The affective function of inner speech during mental rehearsal was measured by means of items 33 to 39. This function, which had been reported by lower proficiency learners during the interviews in the previous study, had shown mental rehearsal to have various specific roles: to obtain self-satisfaction, to reduce nervousness, to acquire self-confidence, to entertain oneself, and to improve the learner's self-image. The present data reveal that for advanced L2 learners inner speech as mental rehearsal is an exceedingly positive affective experience rather than negative, as evidenced by the participants' responses to item 33 (Does your inner speech in English make you feel good?), which obtained 96% Yes responses, and to item 34 (Does your inner speech in English make you feel bad?), which yielded only 9% affirmative answers. Inner speech also emerged as a powerful instrument to gain self-confidence (item 36, 93% Yes responses) and to derive self-diversion in the L2 (item 37, 87% Yes responses). More moderate frequencies were reported for the use of inner speech to reduce nervousness, anxiety, or apprehension (item 35, 74% Yes responses) and to increase self-esteem (item 38, 54% Yes responses). Inner speech in English was found to be very little used by the learners to criticize or punish themselves (item 39, 35% Yes responses). These findings thus confirm in a quantitative way the students' qualitative self-reports of the previous study about the existence of an important affective dimension of inner speech during mental rehearsal of the L2.

CONCLUSIONS

On the basis of evidence provided by a group of advanced ESL learners as compared to previously reported data from lower proficiency students, it is possible to conclude that advanced L2 learners experience inner speech in the second language to a great extent and that, although the frequency of this inner speech increases with proficiency, some of the functions associated with silent rehearsal become less frequent. This study thus clarifies some of the conflicting results of previous research concerning the increase of L2 inner speech as manifested in mental rehearsal. My recommendation for future studies is then not to generalize about mental rehearsal, language play, or inner speech, but to pay close attention to the particular functions and the different manifestations that inner speech adopts.

To summarize, advanced students report higher levels of structural complexity in their L2 inner speech, with words predominating as the typical abbreviated form of inner speech, but with increased ability to think in longer, more elaborate structures such as sentences and conversations, as for example when learners engage in imaginary talk with others and in self-talk. Inner speech in the L2 is highly sonorous and meaningful for these advanced students, even more so than for lower level learners. At an advanced level, therefore, inner speech in the other

language seems to approximate the status of L1 inner speech as it becomes a rich, powerful, and effective cognitive tool used for general thinking purposes.

As these properties of inner speech in the L2 consolidate, certain functions which were distinctive among the lower levels tend to lose their strength. Advanced L2 learners report using less inner speech for certain aspects of rehearsal than lower level learners. Specifically, advanced learners engage in less rehearsal for planning texts, for self- and other-evaluation, for memory storage and retrieval, for self-teaching the language, and for what may be termed language play. This does not mean that rehearsal disappears altogether, but apparently there is less need to use inner speech for those purposes. Thus, the phenomenon known as Din is likely to decrease or disappear, as some studies indicate. This variety of rehearsal has a very restricted role. As Barber (1980) and Krashen (1983) described it, the Din is an involuntary, spontaneous type of rehearsal, in which L2 words suddenly pop out in the learner's head after being exposed to oral input. It seems this type of rehearsal is a natural way of coping with information stored in memory which has not been completely understood, thus the spontaneous recall, the "chewing" on data in short-term memory, and the cycles of storage-retrieval-storage that are associated with the phenomenon. These are instances of inner speech, no doubt, but as such they are very far from the ideational, higher-order thinking processes that Vygotsky attributed to full-fledged inner speech.

It can be concluded then that, just as in the L1, inner speech in the L2 appears to be developmental in nature. In its path from the social, interpersonal, communicative sphere where it originates to its culmination as enabler of personal, idiosyncratic, verbal thought, L2 inner speech changes. An evolution is thus posited in which L2 inner speech starts out as involuntary mental playback of the L2, representing the internal projection of external speech, a sort of internal "echo" of the speech being heard, as Sokolov (1972, p. 1) expressed in reference to L1 inner speech and as the Din phenomenon suggests. L2 inner speech functions in its early stages as a very active analyzer of language, chewing on unknown or not fully understood language (words, sounds, structures) in the input, resolving conflicts between internal and external models of the L2, and carefully, though covertly, monitoring production. As proficiency and confidence in the L2 grow, inner speech acts less and less as analyzer, planner, and monitor, and more and more as a swift mechanism for conducting verbal tasks and for thinking in general. Gradually, inner speech in the L2 becomes the flexible instrument that it is in the L1, an effective means for thinking in words and a mediator of consciousness. It is at this point in the development of L2 inner speech, only attained by the most advanced of L2 speakers, that the L2 comes to share with the L1 that most intimate plane of personal experience, where thoughts, feelings and desires find the word that gives them shape.

In light of the findings of this follow-up study, I submit that the problem of L2 inner speech and its related manifestations is worth pursuing for SLA researchers. There is no denying, however, that embracing the problem entails acknowl-

edging the social-to-the-individual ideological premises of sociocultural theory. I propose that such a view not only makes justice to the social dimension of language learning but also enriches our perspective of the inner workings of the L2 mind. Many questions arise, however, that can be addressed in future research. If inner speech mediates consciousness, is there a different conscious self when an L2 operates?[16] Do advanced L2 language learners use their L1 and their L2 indiscriminately when thinking in words? What accounts for their preferred version of inner speech? More profoundly, is the structure of thought altered by the acquisition of another language, just as the structure of thought is altered by the acquisition of a first language? Of course, the problem of method remains. But even this should be no hindrance upon embarking on the study of L2 inner speech. All approaches to inner speech, from Vygotsky's genetic method, to the electromyographic techniques of cognitive psychophysiology, to introspection via diaries, interviews, or questionnaires, even to the latest brain scanning procedures, all have advantages and limitations, all pretend to make observable what remains unobservable, but they can all collectively contribute to a greater understanding of this most intriguing of L2 phenomena, inner speech.

ACKNOWLEDGMENTS

APPENDIX: QUESTIONNAIRE ON INNER SPEECH AND MENTAL REHEARSAL OF THE SECOND LANGUAGE (ENGLISH VERSION)

The purpose of this questionnaire is to explore the "inner speech" that students of English as a second language experience as they are mentally rehearsing in English. The following definitions will help you understand the questionnaire better:

Inner speech is any type of language in English that occurs in your mind and that is not vocalized (spoken). Inner speech may include sounds, words, phrases, sentences, dialogues, and even conversations in English.
Mental rehearsal is a voluntary or involuntary activity by means of which students practice in their minds the language they have learned, heard, or read, or the language they will have to use in a future oral or written activity. When mentally rehearsing, the students may simply be recalling, repeating, or imitating words in the second language. Sometimes, mental rehearsal is more creative, as, for example, when the students imagine dialogues, plan what they are going to say or write, mentally self-correct, evaluate other students' language, or engage in conversations with themselves.
If you do not recognize these definitions, or you have never mentally rehearsed in English, do not worry. Answer the questions, anyway; your answers will be equally valuable.

The questionnaire has two parts. Part I will help the researcher determine what kind of contact with English you have had. Part II has questions on inner speech and mental rehearsal of the English language.

Try to answer as truthfully and precisely as possible and do not leave questions unanswered. You will have to write your name. This is only to enable the researcher to identify some students that may participate in a second phase of the study. The results of this questionnaire will only be used for research purposes.

Thank you very much for cooperating with this study.

Part I

1. Student name:_____
2. Age:_____
3. Female_____ Male_____
4. Place of birth:_____
5. English courses that you have taken in this university:_____
6. English course that you are taking now:_____
        Section_____Professor_____
7. What elementary school(s) did you attend?
        School(s):_____
        Place:_____
8. What intermediate school(s) did you attend?
        School(s):_____
        Place:_____
9. What high school(s) did you attend?
        School(s):_____
        Place:_____
10. Have you lived in the United States or in some other place where English is spoken?
        Yes_____ No_____ How long?_____
11. Which do you consider your first language?
        _____Spanish
        _____English
        _____other (specify)_____
12. Which language is spoken in your home?
        _____mostly Spanish
        _____mostly English
        _____both Spanish and English
        _____other (specify)_____

Part II

Instructions. Choose the alternative that you prefer and darken the corresponding space on the answer sheet

A	B	C	D	E
never	almost never	sometimes	often	always

1. Have you had inner speech in English? (You can read the definition again.)
2. Do you still experience inner speech in English?
3. Is your inner speech made up of words?
4. Is your inner speech made up of phrases?
5. Is your inner speech made up of sentences?
6. Is your inner speech made up of conversations or dialogues?
7. Can you "hear" the sounds of English in your mind?

When you mentally rehearse,

8. do you repeat words you want to learn?

9. do you try to imitate the pronunciation of words you have learned?

10. do you try to make sentences with certain words?

11. do you try to recall words you have learned?

12. do words with meanings you do not know well come to your mind?

13. do your thoughts in English make sense?

14. Do you hear in your mind voices of other people in English?

15. Do you repeat aloud any of the words of that inner speech when you are alone?

16. Do you look up in a book or dictionary the meaning of English words that come to your mind?

17. If you have to talk to someone in English or you have an oral presentation, do you mentally rehearse what you are going to say?

18. If you have to write something in English, do you rehearse first in your mind what you are going to write?

19. Do you ever think how you would say or write something in English, even if you are not going to use it?

20. Do you try to correct the pronunciation of words in your mind?

21. Do you try to correct grammar errors when you mentally rehearse in English?

22. Do you try to apply the grammar rules you have learned to your inner speech in English?

23. When you hear other people speaking English, do you mentally evaluate how those people use the language?

24. Do you catch yourself thinking in English about things not related to your English class?

25. Is your inner speech in English related to your English class?

26. When the English teacher asks a question in class, do you answer it in your mind even though you are not called to answer?

27. Do you imagine dialogues or conversations with other people in English?

28. Do you talk to yourself in English?

Do you "play" with your inner speech in English, for example . . .

29. . . . do you make up rhymes?

30. . . . do you invent funny or original combinations?

31. . . . do you invent your own words?

32. . . . do you experiment with the order of words?

33. Does your inner speech in English make you feel good?

34. Does your inner speech in English make you feel bad?

35. Does your inner speech in English reduce your nervousness, anxiety, or apprehension?

36. Does your inner speech in English give you self-confidence?

37. Does your inner speech in English entertain you and help you pass the time?

38. Do you use your inner speech in English to increase your self-esteem?

39. Do you use your inner speech in English to criticize or punish yourself?

40. Is your inner speech in English mixed with Spanish?

NOTES

[1] In a review of the current available literature, only two studies emerged dealing strictly with inner speech from an L2 perspective: Guerrero's (1990/1991, 1994), of which the present study constitutes a follow-up, and Ushakova's (1994), a summary of theoretical and experimental studies on L2 inner speech conducted in Russia.

[2] Vygotsky (1986) was outspoken about his philosophical approach to inner speech and verbal thought (thought mediated by inner speech): "Verbal thought is not an innate, natural form of behavior, but is determined by a historical-cultural process . . . . Once we acknowledge the historical character of verbal thought, we must consider it subject to all the premises of historical materialism" (pp. 94-95).

[3] The sociocultural view of mind and language development is clearly not the dominant one in

current SLA research. As de Bot (1996) suggests, the information-processing perspective of mainstream SLA research makes it difficult to adopt Vygotskyan theoretical insights because "notions from these two paradigms do not fit together well" (p. 553).

[4] My focus does not lie on L2 inner speech as a problem-solving tool, for example, or as it manifests in L2 reading and writing, although whether, how, and to what extent inner speech is involved in these activities are topics extremely rich in research potential and as yet unexplored. Neither am I involved in the study of "private speech" in the L2, a phenomenon closely associated with inner speech, both in nature as well as developmentally (for a review of studies on L2 private speech, see McCafferty, 1994; see also Lantolf, DiCamilla, & Ahmed, 1997). Although inner and private speech may be subsumed under the category "language for thought" (Frawley, 1997, p. 183), private speech remains the audible, vocalized (thus, social in form) counterpart of inner speech. My object of interest in this paper is the internal, covert manifestations of the phenomenon, and thus the data collected for this study are restricted (with the exception of item 15) to nonvocalized inner speech. Further research may pursue the question of whether inner and private speech are identical phenomena or there exist worth noting differences between the two.

[5] The overall population of Inter American University of Puerto Rico, Metropolitan Campus, which fluctuates between 11,000 and 14,000, is 90% ESL, having Spanish as their L1.

[6] The reading Din is apparently not restricted to foreign language readers. In a related study, McQuillan (1996) found that advanced L1 readers (4 subjects) reported experiencing an involuntary Din after being engaged in pleasure reading.

[7] Some of these had to do with the structural nature of inner speech (original items #17 and #18), some had to do with the textual function of inner speech (original items #21 to 24), and one had to do with the ideational role of inner speech (original item #30). These items were not considered essential for purposes of the present study.

[8] No significant differences in the students' responses to the questionnaire were found in terms of gender, except for two items: Item 10, in which males had a larger percentage (28%) of No responses than females (8%) $[\chi^2 (1, N = 68) = 4.566, p<.03]$, and item 37, in which males also had a larger percentage (29%) of No responses than females (6%) $[\chi^2 (1, N = 68) = 3.928, p<.04]$. These rather minimal gender differences will not be pursued in the main body of the text.

[9] None of the items in the questionnaire yielded significant differences in terms of Yes/No responses between the L1 and L2 groups, as indicated by the multiple-sample chi-square test.

[10] For the L1 students in the present study (n = 18), affirmative responses were the following: item 3, 94%; item 4, 89%; item 5, 83%; item 6, 83%.

[11] In fact, the hallucinatory voices some schizophrenic patients report have been associated with involuntary inner speech in the L1 (Hoffman & Satel, 1993).

[12] According to Morin and Everett (1990), individual differences in self-consciousness and self-knowledge could be partially explained by the extent to which inner speech is used. Six-year-old children, for example, did not evidence use of inner speech in self-aware conditions (Morin & Everett, 1991). In connection to this, an interesting research question would be whether the development of inner speech in the L2 has an effect on learners' metacognitive strategies. Is there a correlation between the learners' increased use of L2 inner speech and their capacity for self-reflection on cognitive processes? Furthermore, can L2 inner speech operate below the level of consciousness (as an anonymous reviewer wonders), or is it always "self-directed language for *metaconscious* [italics added] control," as Frawley (1997, p. 7) suggests?

[13] Reiss (1985) had mentioned it as an L2 strategy.

[14] The cyclical nature of rehearsal was also a finding in Guerrero (1990/1991, 1994). In that study, it was possible to establish through the students' interviews the occurrence of circular patterns of memorization in which the learners alternately retrieved words from memory, rehearsed them, and again stored them for further retrieval and rehearsal.

[15] The one sample chi-square test indicated that the difference between Yes and No answers was not significant in these four items.

[16] Pavlenko (1998) offers rich insights into some of these questions in her analysis of bilinguals' narratives of their L2 learning experience. Her data show the processes by which people can actually become different selves as they get socialized into a new language, processes involving

shifts in language identity, loss of the inner voice in the L1 and emergence of a new voice in the L2, and the difficulty—indeed, sometimes the impossibility—of translating one's experience in one language into another. (I thank an anonymous reviewer for pointing out this relevant research reference.)

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Huebner's (1983) Semantic Wheel for NP Reference and L3 Acquisition[1]

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In the literature on the acquisition of English articles based on Huebner's (1983) model, Thomas (1989) suggested that data on the use of articles in the generic context is critical in deciding whether L2 learners associate the definite article with the feature Specific Referent, [+SR], or Assumed Known to the Hearer, [+HK], as suggested by earlier studies (Huebner, 1983; Master, 1987; Thomas, 1989). This paper discusses the results of a cross-sectional study, undertaken in 1996, which examined the phenomenon of referentiality in the acquisition of English as a foreign language by francophone English major college students in Burkina Faso. The research focused on the acquisition of the article system. The study involved 177 undergraduate and graduate students at the University of Ouagadougou with at least 7 years of English instruction. A cloze test of 107 items was used to collect the data. Demographic information was also collected using a 16-item questionnaire. The result does not give support to Thomas' (1989) view that L2 learners associate the definite article with [+HK] context since the L3 leaners in this study associate the zero article with [+HK] feature.

Although studies using Huebner's (1983) proposed features of referentiality: ([± Specific Referent i.e. ± SR] and [± Assumed Known to the Hearer, i.e. ± HK]), which are used in this study, have examined the acquisition of the article system in L1 and L2, no study using this framework has examined the acquisition of L3[2]. Furthermore, in one study (Thomas, 1989), the author suggested that there are conflicting results in this framework regarding the referential feature (Specific Referent, [+SR] or Assumed Known to the Hearer, [+HK]) with which learners associate the definite article in English. According to her, "however, we lack the critical evidence, namely that which concerns the use of articles in generic contexts" (p. 352). The present study provides data on article usage in the generic context.

The official language of Burkina Faso is French, but English has been taught in secondary schools since the colonial era as a foreign language, and most secondary school students speak at least one African language and French before learning English as a third language (L3).

Table 1 shows a description of the distribution of the articles in English (L3), French (L2) and three African languages (Mooré, Fulfuldé/Pulaar, Jula) following Huebner's (1983) semantic categories.

	Generic [-SR +HK]	Referential Definite [+SR +HK]	Referentical Indefinite [+SR -HK]	Nonreferential [-SR -HK]
English	the, a, Ø	the	a, Ø	a, Ø
French	le, un	le, les	un, du, des	un, du, des, Ø
Mooré	Ø	wã	Ø	Ø
Jula	Ø	ni	Ø	Ø
Fulfuldé	Ø	nominal suffix	Ø	Ø

Table 1: Article usage in the four semantic categories

Table 2 shows the article and noun type combination in English, French, and Mooré (used as a representative of the African languages). This table shows some differences in the three languages that we will discuss later.

	Article used with singular noun	Article used with plural noun
English	a, the	Ø , the
French	le, un, Ø	les; des
Mooré	Ø, wã	Ø, wã

Table 2: Article and Noun Combination in English, French, and Mooré.

The noun phrase (NP) structure of the different languages is shown in a tree diagram (Figure 1), where Mooré structure is different from those of French and English with regard to word order.
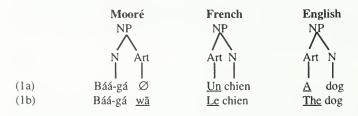

Figure 1

PREVIOUS STUDIES

L2 Acquisition Studies

There is little research on the acquisition of the article system in L2 and/or foreign language (FL) situations. We can cite some works devoted to the acquisition of English (Hakuta, 1976; Master, 1987; Mizuno, 1986) and French (Haden, 1973). There are some contrastive studies as well as pedagogically oriented studies. However, few L2 studies (e.g. Master, 1987) were based on Huebner's (1983) framework.

Huebner (1983; 1985) present longitudinal studies with a single subject, with a focus on variation in interlanguage syntax, and not on the acquisition of the definite article. The data on articles in these studies were analyzed using semantic types that rely on Bickerton's (1981) semantic wheel for noun phrase reference. The wheel has four contexts for noun phrase (NP) references and these contexts determine the function of the article that is used with the noun. In the 1983 study, Huebner first proposed the categories used in the present project: context one, ([-SR], [+HK])—generic nouns; context two, ([+SR], [+HK])— referential definite nouns; context three, ([+SR], [-HK])—referential indefinite nouns; context four, ([-SR], [-HK])]—nonreferential nouns. The 1985 data suggest that the subjects in the study associated the indefinite article 'a' with singular count referential noun phrases and not with nonreferential noun phrases.

Unlike Huebner (1983, 1985), Thomas (1989) conducted a cross-sectional study with a different data collection method. In this study, data were gathered using an oral picture description task, with the analysis using Huebner's (1983) semantic types. The thirty adult subjects in this research represent native speakers of nine languages (Greek, Spanish, Italian, Japanese, Chinese, Korean, Finnish, German, French.), some with article systems and others without article systems. A comparison of L1 and L2 data was done to see if there was similarity or not in L1 and L2 acquisition of articles. The results showed that all subjects use 'the' in referential indefinite contexts at significantly higher rates than in non-referential contexts. The study thus concludes that both L1 and L2 learners may share an initial hypothesis associating 'the' with referential nouns.

Tarone and Parrish (1995) differs from the previous studies above because it is a reanalysis of Tarone's (1985) data. This study focused on the use of the articles in English as a Second Language (ESL). Subjects in this study were 20 ESL students (10 native speakers of Japanese and 10 native speakers of Arabic) at the University of Michigan. Three tasks were used to collect data in the study: (a) written "grammaticality" judgment containing five sentences with missing articles; (b) an interview with a native speaker; (c) an oral narration task. The hypothesis is that learners would supply articles and other grammatical forms most accurately on the grammatical test and least accurately on the narrative, the interview producing intermediate levels of accuracy. The data were analyzed using Huebner's (1983) semantic wheel of NP reference. The results showed that different tasks elicited

different types of NPs to different degrees. For example, the greatest difference in learner accuracy in the articles used is with type two NPs ([+SR][+HK], that is, specific referent and assumed known to hearer) which did decrease across the three tasks used. Statistical significance was obtained between the grammar task and the two oral tasks but the difference between the two oral tasks was not statistically significant.

THE STUDY

The purpose of this study was to investigate how learners in a multilingual context acquire English as a foreign language and especially to investigate whether French bilinguals learning English as a foreign language (L3) associate the definite article with [+HK] or [+SR] feature values in the generic context ([-HK +SR]). In order to achieve this goal, I decided to use data on learners' article use in different contexts: generic, referential definite, referential indefinite, and nonreferential.

RESEARCH DESIGN

Settings

This research project involved Burkinabè English major college students learning English as a third language (L3) in an instructional setting. The design was a cross-sectional study of a sample of students, the majority of whom hoped to become teachers of English at either the high school or university level. The study involved volunteer students from the four levels of proficiency (DEUG1, DEUG2, Licence, Maîtrise)[3] in the English Department at the University of Ouagadougou. A group of 11 graduate students, all of them native speakers of American English, was used to pilot the cloze-type text for data collection. The native speakers were all graduate students at the University of Illinois at Urbana-Champaign at the time of the pilot study.

Subjects

The Burkinabè subjects for this study were 177 college English major students who formed four groups, representing the four levels of proficiency in the English Department. Group one (DEUG 1) was composed of 50 students in their first year; group two (DEUG 2) was made up of 50 students in their second year; group three (Licence) comprised of 50 students in their third year; and group four (Maîtrise) consisted of 27 students in their fourth year. Out of the 177 subjects, 48 (27.12%) reported having repeated at least one class (DEUG 1, DEUG 2, Licence, Maîtrise). About 19.9% of the subjects reported speaking only one African language; 43.2% reported speaking two African languages; 26.1% spoke three African languages; 9.7% spoke four African languages. For the majority of the subjects (80.1%), English was a fourth language, because they reported speaking at least two African languages.

	DEUG 1	DEUG 1	Licence	Maîtrise
Mean age	22	23	23.9	24.4
Age range	19-25	20-30	20-34	21-27
Male	31	36	17	14
Female	19	14	33	13

Table 3: Demographic Information about the Subjects by Academic Level[5]

Table 3 gives information about the age and gender of students in each of the four academic levels.

The majority of the subjects spoke a Voltaic language (e.g., Mooré), a West Atlantic language (e.g., Fulfuldé) or a Manden language (e.g., Jula) as a native language (L1) and French as a second language (L2).

The total classroom exposure to English[4] was 1,220 hours for the DEUG 1, the DEUG 2 had a total exposure of 1,782.5 hours, while the Licence group had 2,332.5 hours of exposure, and the Maîtrise group a total exposure of 2,470 hours. Apart from classroom exposure to English, subjects also reported listening to English news broadcasts on some radio stations and the national television (TNB) in Ouagadougou, as well as international TV broadcasts such as CBS and ABC at the American Cultural Center. On the questionnaire used to obtain sociolinguistic information, 80.60% reported listening to English news broadcasts.

There are two main reasons for choosing college students for this study: (a) they are the future teachers of English; (b) they constitute homogeneous groups with regard to exposure to English (based on the number of credit hours) at the university, which is not the case with high school students who may or may not have teachers all year round due to lack of English teachers.

Data collection.

A week before the test was administered, I met with potential subjects in each class for about 10 minutes to explain to them the purpose of the study, and encouraged them to volunteer as participants. All the participants volunteered on their own after the meeting. The data collection was carried out in one session. The subjects first filled out the questionnaire and then did the cloze test; both tasks lasted one hour.

In order to reduce nervousness, the volunteer subjects were told on the day of the test not to be concerned about grades, and that they were participating in a research project and should do the test to the best of their abilities.

The cloze-type test was used to test the subjects' knowledge of English article usage. The test contained about 728 words and was a blend of texts from four different sources: Kharma (1981), Emecheta (1979), National Geographic

(July, 1990), and Culturgram (1996). Kharma (1981) is a published study entitled "Analysis of the errors committed by Arab University students in the use of the English definite/indefinite articles", and the test for this study was replicated in the present research as a cloze-type test. Emecheta (1979) is a novel entitled *The Joys of Motherhood*, written by this African author; and Culturgram (1996) is a cultural publication about Benin (West Africa) by Brigham Young University, USA. The text was divided into five sections corresponding to the text sources: sections I and II from Kharma (1981), section III from *Emecheta* (1979), section IV from *National Geographic* (July, 1990), and section V from Culturegram (1996). Initially, the cloze test contained 107 items, but the final data analyzed contained 102 items. Four were eliminated, because they were a combination of an article and an adjective instead of a noun; the fifth one was a situation where the native speakers' choice of article was split.

In the cloze-test, the articles 'a/an, the, $\varnothing$' were deleted before nouns, and subjects were asked to fill in the slots in the text with the appropriate article. The text was divided into five sections with titles according to the source or theme. Subjects were instructed that if no article was required, they should put a '$\varnothing$' mark in the space provided. This was a means for controling for non-response and zero article. Two written examples were given at the beginning of the text, and the instructions were read to the subjects although they were also written at the beginning of the text for them to read at their own pace. The subjects were given some time to read over the text and to ask any questions they had before starting (A copy of the cloze-test is provided in the appendix).

Questionnaire.

A 16-item questionnaire was also used to gather sociolinguistic information about the subjects. Subjects filled out this questionnaire the day they took the test and were informed that the questionnaire was being used for research purposes.

Data analysis.

The frequency of correct article use was computed and the articles were classified into four semantic categories for discussion. The frequency of expected correct article type uses was compared with the observed article types used by subjects in order to determine whether they under-used (fewer than expected) or over-used (more than expected) some article types. The response (dependent) variable was the subjects' overall scores on the test, and the explanatory (independent) variable was the level of proficiency or academic level. The total score for each subject ranged from 0 to 102; items 10, 61, 72, and 84 were eliminated from the analysis for various reasons: $\varnothing$ article + adjective (# 10, 61, 72) and $\varnothing$ article + proper noun (# 84), instead of $\varnothing$ article + noun. The context of interest for this study was 'article + noun'. Item #100 was eliminated, because there was no majority native speaker article usage for either the indefinite (5 out of 11), definite (5 out of 11), or zero (1 out of 11) article during the pilot study.

Determination of correct response.

The text was piloted with 11 native speakers of American English with at least an undergraduate degree. This piloting allowed me to see which usages most native speakers agreed upon and which they did not. From the native speakers' performance, the researcher considered the items where the majority of the 11 native speakers agreed as the correct article usage. On the 102 items, the native speakers unanimously agreed on 71 and for the remaining 31, I considered the majority usage (i.e. where at least six agreed) to be the correct one.

Classification of the articles into semantic categories.

The deleted articles were classified according to the four contexts of occurrence defined by Huebner (1983): Context one (Generic); context two (Referential definite); context three (Referential indefinite); context four (Nonreferential). This classification was done separately by the author and a graduate student in linguistics and the results were compared for reliability. The reliability rating differed depending on the semantic category, but on the whole there was a high agreement (85%) between the two classifications; the generic category had the lowest disagreement. The distribution of the 102 articles was as follows: 28 zero articles, 25 indefinite articles, and 49 definite articles. The breakdown of the articles by context gives the following distribution: (1) Generics 31 items (a = 6; $\emptyset$ = 14; the = 11); (2) Referential definite 38 items (the = 38); (3) Referential indefinite 26 items (a = 16; $\emptyset$ = 10); (4) Nonreferential 7 items (a = 3; $\emptyset$ = 4).

The analysis of the data was based on the classification of the articles into categories below:

1. Generic: [-SR +HK] No specific referents assumed known to the hearer
   $\emptyset$:   1, 11, 12, 16, 17, 18, 25, 31, 32, 35, 53, 71, 78, 79.
   a: 20, 26, 38, 40, 47, 86.
   the: 37, 95, 96, 97, 101, 102, 103, 104, 105, 106, 107.

2. Referential definite: [+SR +HK] Specific referents assumed known to the hearer
   the: 3, 9, 13, 14, 19, 22, 23, 24, 33, 34, 45, 48, 49, 50, 51, 52, 54, 55, 58, 59, 60, 62, 63, 66, 67, 69, 73, 74, 75, 76, 80, 81, 82, 83, 89, 90, 92, 94.

3. Referential indefinite: [+SR - HK] Specific referents assumed not known to the hearer
   $\emptyset$:   2, 4, 629, 30, 42, 56, 70, 87, 98.
   a: 7, 8, 15, 41, 43, 44, 46, 57, 64, 65, 77, 85, 88, 91, 93, 99.

4. Non-referential: [-SR -HK] No specific referents assumed not known to the hearer

   ∅:   21, 27, 39, 68.

   a: 5, 28, 36.

Scoring the test: missing data.

The test scores were coded as right (1), wrong (0) or missing (.). The missing data, coded (.) in the data base were analyzed in three ways to determine the effect (if any) of patterns of omits: (a) missing data were considered 'missing' when no article was supplied for the item (i.e., the blank was not filled with any of the three articles: a, the, ∅); (b) missing data were considered 'wrong,' coded (0) in the dataset although no article was supplied (i.e. the blank was not filled with any of the three articles: a, the ∅), because it was assumed that if an article were supplied it would be the wrong one; (c) missing data were considered 'not reached' (incomplete because did not get that far). In this last case, all missing or not supplied article data which were not between responses (i.e., which were at the end of the test) were considered missing and interpreted as 'not reached.' Examples are given using the text below:

Michael Faraday was one of those remarkable men who began $_{(1)}$...... life in $_{(2)}$...∅.. very modest circumstances and yet reached $_{(3)}$...**the**.... top of their profession through $_{(4)}$...... determination and $_{(5)}$...**a**... certain amount of $_{(6)}$...... good luck. Although he began his career as $_{(7)}$...**a**.... poorly educated bookbinder, he became internationally known as $_{(8)}$....**a**....... scientist before he reached $_{(9)}$........ age of thirty. He devoted $_{(10)}$............. most of his life to $_{(11)}$.....∅... experiments with $_{(12)}$....∅.. electricity. He was $_{(13)}$......... man who invented $_{(14)}$....... first dynamo as well as $_{(15)}$........ type of transformer.

In the above text, 'missing' is any slot without one of the three articles (a, the, ∅) as in 1, 4, 6, 9, 10, 13, 14, 15. These missing data were analyzed in the three ways stated above due to the issue of missing data interpretation in the literature. Since no articles were supplied in these slots, the examples above would have been considered 'missing' in one dataset and 'wrong' in a second dataset. However, in a third dataset where 'missing' was considered 'not reached,' only items 13 through 15 above would have been considered 'not reached' since the subjects did not get that far. 'Not reached' is a different design than 'missing.'

This way of treating missing data was adopted in order to determine whether it was an issue in this study, following Hudson's (1993) discussion of missing data in his article "Nothing does not equal zero." He argues that the multidimensional model of developmental sequence was inaccurate due to faulty analyses and especially the interpretation of missing data. In the present study the missing data were analyzed in three ways to determine if time to finish the test was a problem for the students, since it was natural to wonder if one hour was sufficient time for students at these levels of proficiency. If the time was insufficient, one would expect to see tests with the last part not done, as in the sample text above. However, the reliabil-

Test Type	Percent correct	M	SD	Range	k_a
Cloze	74.3	75.79	9.49	42-94	102
i. Generic	65.0	20.14	4.48	4-30	31
∅	73.4	10.28	2.50	3-13	14
a	55.2	3.31	1.39	0-6	6
the	59.5	6.55	2.83	0-11	11
ii. Nonreferential	75.3	5.27	.92	3-7	7
∅	65.3	2.54	.83	0-4	4
a	91.0	2.73	.53	0-3	3
iii. Ref. Definite	79.9	30.35	4.70	0-38	38
iv. Ref. Indefinite	77.1	20.04	2.46	12.24	26
∅	62.3	6.23	1.57	2-10	10
a	86.3	13.81	1.50	10-16	16

Note: Ref. stands for referential. The number of valid cases in all these analyses was 177 (i.e. N=177).¶
[a] Maximum possible points that can be obtained on the test.

Table 4: Total Scores for the Whole Group

ity estimates and the valid cases of the different datasets (Kambou, 1997) showed that this was not the case; we can therefore conclude that the subjects had sufficient time.

RESULTS AND DISCUSSION

Table 4 presents the general performance of the subjects on the test. It also presents the distribution of scores, means, variability, range, and the rate of accuracy (percent correct).

The rates of correct article usage (percent correct) presented in Table 4 were calculated using the formula: mean score/number of items x 100. Table 5 is a distribution of article usage in the four semantic categories and their subcategories in the test. Table 4 shows that the general rate of accuracy for the subjects on the test was 74% while both tables show that the rates by context/semantic category were (a) 65% for generic, (b) 75% for nonreferential, (c) 80% for referential definite, and (d) 77% for referential indefinite. These results show that the generic

Semantic Category	Subjects' Response				
	∅	a	the	Missing	Total
GENERIC	2,548 (46%)	932 (17%)	1,891 (34%)	116 (2%)	5,487
Generic_∅	**1,820 (73%)**[a]	133 (5%)	456 (18%)	69 (3%)	2,478
Generic_a	183 (17%)	**585 (55%)**[a]	276 (26%)	18 (2%)	1,062
Generic_the	545 (28%)	214 (11%)	**1,259 (60%)**[a]	29 (1%)	1,947
REF. DEFINITE	618 (9%)	669 (10%)	5,371 (80%)	68 (1%)	6,726
Ref. definite_the	618 (9%)	669 (10%)	**5,371 (80%)**[a]	68 (1%)	6,726
REF. INDEFINITE	1,208 (26%)	2,957 (64%)	374 (8%)	63 (1%)	4,602
Ref. indefinite_∅	**1, 102 (62%)**[a]	512 (29%)	115 (6%)	41 (2%)	1,770
Ref. indefinite_a	106 (3%)	**2,445 (86%)**[a]	259 (9%)	22 (1%)	2,832
NONREFERENTIAL	488 (39%)	703 (56%)	18 (1%)	30 (2%)	1,239
Nonreferential_∅	**450 (64%)**[a]	220 (31%)	14 (2%)	24 (3%)	708
Nonreferential_a	38 (7%)	**483 (91%)**[a]	4 (%)	6 (1%)	531
Total	4,862 (27%)	5,261 (29%)	7,654 (42%)	277 (2%)	18,054

Note: The vertical total refers to the number of items in each subcategory multiplied by the number of subjects (N=177), while the horizontal total is the sum of article types used or omitted by all subjects in each subcategory. Generic = [-SR +HK]; Ref. Def. = [+SR +HK]; Ref. Indef. = [+SR -HK]; Nonref. = [-SR -HK].
[a] The correct article in that context.

Table 5: Summary Statisctics
Total Frequency Distribution and Raw Percentages of Article Usage

context was the most difficult and especially the use of the generic indefinite. It could be suggested that the fact that the subjects do not have a generic article in this context in their L1, and that this use is also rare in French, the L2 (cf Table 1), could be the reason why they had such problems. On the other hand, the rate of accuracy with the zero article could be interpreted as either due to their L1, which uses only this article in the generic context, or as a mastery of this usage in English, since French hardly uses the zero article for the generic sense. An exception is made in the case of the ritual ceremony of marriage when the authority declares the couple mari et femme, 'husband' and 'wife.' If we consider this use to be due to L1 we then have a case of positive transfer, and if it is due to their mastery of English we have a case of good control of the language. This is plausible because the subjects have had at least seven years of consistent classroom exposure to English. The same argument could be put forward with regard to the use of the generic 'the' and in this case the positive transfer would be due to French.

Semantic Category	Subjects' Response				
	∅	a	the	Missing	Total
DEUG1					
Generic_∅	**415 (59%)**[a]	65 (9%)	183 (26%)	37 (5%)	700
Generic_a	51 (17%)	**156 (52%)**[a]	84 (28%)	9 (3%)	300
Generic_the	172 (31%)	83 (15%)	**274 (50%)**[a]	21 (4%)	550
DEUG2					
Generic_∅	**541 (77%)**[a]	22 (3%)	125 (18%)	12 (2%)	700
Generic_a	56 (19%)	**158 (53%)**[a]	83 (28%)	3 (1%)	300
Generic_the	144 (26%)	48 (9%)	**355 (65%)**[a]	3 (1%)	550
Licence					
Generic_∅	**558 (80%)**[a]	33 (5%)	92 (13%)	17 (2%)	700
Generic_a	58 (19%)	**165 (55%)**[a]	71 (24%)	6 (4%)	300
Generic_the	166 (30%)	57 (10%)	**324 (59%)**[a]	3 (1%)	550
Maîtrise					
Generic_∅	**306 (81%)**[a]	13 (3%)	56 (5%)	3 (1%)	378
Generic_a	18 (11%)	**106 (65%)**[a]	38 (23%)	-	162
Generic_the	63 (21%)	26 (9%)	**206 (69%)**[a]	2 (1%)	297

Note: The total refers to the number of items in each subcategory multiplied by the number of subjects in each academic level (n=50 for DEUG1, DEUG2, and Licence, and 27 for Maîtrise).
[a] The correct article in that context.

Table 6: Summary Statistics
Distribution of Articles in the Generic Context by Academic Level

Comparing the rate of correct article usage in each of the four contexts in Table 4, the result suggests that the generic context (65% rate of accuracy) was the most difficult and the referential definite (80% rate of accuracy) the least difficult. The use of the different articles in all the subcategories (Table 5) suggests that there was L1 and L2 transfer or overgeneralization of L3 article usage.

In Table 5 the final (rightmost) column (vertical) shows that the expected correct article usage in the generic context for the all the subjects (177) was 1,062 (i.e., 177 x 6 items) indefinite articles; 2,478 (i.e., 177 x 14 items) zero articles; and 1,947 (i.e., 177 x 11 items) definite articles. For the referential definite context, 6,726 (i.e., 177 x 38 items) definite articles were expected; while for the

referential context, 2,832 (177 x 16 items) indefinite articles and 1,770 (i.e., 177 x 10 items) zero articles were expected; whereas for the nonreferential we expected 531 (177 x 3 items) indefinites articles and 708 (177 x 4 items) zero articles. On the whole, therefore, 4,425 (177 x 25 items) indefinite articles, 8,673 (177 x 49 items) definite articles and 4,956 (177 x 28 items) zero ($\emptyset$) articles were expected; however, the results (the total number of articles actually used— the bottom line) show that there were fewer 'zero' (4,862 used instead of 4,956 expected) and definite articles (7,654 used instead of 8,673 expected) but more indefinite articles used than expected (5,261 used instead of 4,425 expected).

Table 6 shows the distribution of articles by academic level including the use of the three articles in the generic context in each of the four groups. The Freshmen had the lowest rates of correct article usage when compared with the three other groups in all the subcategories. They had a success rate in the generic context of about 54%, the average of the three subcategory rates (zero article, 59%; indefinite article, 52%; definite article, 50%). The Sophomores had a success rate of about 65% (zero article 77%, indefinite article 53% and definite article 65%). The Bachelor's group had a 65% rate of correct article usage (80% zero article, 55% indefinite article and 59% definite article). The Master's group had the highest success rate of correct article usage, 72% (81% for zero article, 65% for indefinite article and 69% for definite article). The incorrect use of L3 articles in all subcontexts indicates that the subjects may be transferring or overgeneralizing the use of L3 articles. The result also shows that there is a correlation (although a correlation coefficient test was not run) between rate of accuracy and academic level with regard to the use of zero and indefinite articles.

Table 7 shows that in the test the learners used the definite article 25% of the time in [+HK] contexts ([-SR +HK]) and 5% of the time in [+SR] ([+SR -HK]) contexts; they also used the indefinite article 18% of the time and the zero article 52% in [+HK] contexts, while in [+SR] contexts ([+SR -HK]) the zero and the indefinite articles were used 25% and 53% of the time, respectively. It can be said from the results that the learners associate the zero article with the [+HK] feature in [+HK] contexts and the indefinite article with the [+SR] feature in [+SR] contexts.

A comparison of the rate of usage of the three articles in the two contexts, [+SR] and [+HK] by academic level showed that all four groups had the highest accuracy rate of article use for the zero article, followed by the definite article and then the indefinite article in [+HK] contexts. However, in [+SR] contexts, the article with the highest rate of usage was for the indefinite article, then the zero article and at last, least frequently used, the definite article.

CONCLUSION

Relation to previous work

The literature using Huebner's (1983) framework has been summarized in

Context Type	Frequency of articles used[a]		
	∅	a	the
Overall			
(a) [+HK]	2,548 (52.4%)	932 (17.7%)	1,891 (24.7%)
(b) [+SR]	1,208 (24.8%)	2,957 (52.6%)	374 (4.9%)
Academic level			
(a) [+HK]			
DEUG 1	638 (48.9%)	304 (18.6%)	**541 (26.9%)**
DEUG 2	741 (54.2%)	228 (16.2%)	**563 (24.7%)**
Licence	782 (53.7%)	255 (17.6%)	**487 (22.8%)**
Maîtrise	387 (52.8%)	145 (18.8%)	300 (24.5%)
(b) [+SR]			
DEUG 1	319 (24.4%)	828 (50.7%)	**113 (5.6%)**
DEUG 2	336 (24.6%)	849 (60.3%)	**112 (4.9%)**
Licence	361 (24.8%)	832 (57.4%)	**94 (4.4%)**
Maîtrise	192 (26.2%)	448 (58.0%)	55 (4.5%)

Note: n=50 for DEUG 1, DEUG 2, and Licence groups, and 27 for Maîtrise.
[a] The percentages in the table were obtained by (a) first dividing the total number of article type used in each context, [-SR +HK] and [-HK +SR], by the overall total used by all subjects or a group, and then (b) multiplied the result obtained in (a) by 100.
A. Cloze test: Correct article use expected

Table 7: Distribution of the Articles in [+HK] and [+SR] Contexts by Academic Level

Thomas (1989), and she suggests that L1 learners first associate the definite article with the specific referent ([+SR]) context, because they are sensitive to the specificity of nouns, while the L2 learners first associate it with the assumed known to the hearer ([+HK]) context.

Speakers in the L1 and L2 associate the articles to features. We see that the summary of article usage in Table 1 shows that for Mooré-French bilinguals in the L1, there are only two categories, while the L2 has four as in English. The L1 associates the definite article with [+SR +HK] and zero elsewhere whereas the L2 associates the definite article with [+HK] context and the indefinite and partitive with [-HK] context.

For [+HK] ([SR +HK])and [+SR] ([+SR -HK]) contexts, the results in Table

7 show that the definite article is not highly associated with [+HK] context (25%), but rather it is the zero article (52%). In the [+SR] context, it is the indefinite article (56%) that the subjects associated with the feature [+SR]. This result is inconsistent with Thomas' (1989) suggestion that learners initially associate the definite article with [+SR]. Thomas (1989) suggested that data from the generic context were needed to verify the association of the definite article context; the present study offers that missing enquiry. In that regard, the result of the test (Table 5) can be interpreted in two ways: (a) by considering the total number of article types used in [+SR] and [+HK] contexts (i.e. the frequency); (b) considering only the incorrect articles used in these contexts. Because the analyses in previous studies using this framework were based on (a); the present analysis will also depend on this same condition in order to make a fair comparison of all the results obtained using this approach. In this case, the results as presented in Tables 5 and 7, therefore, show that L3 learners do not associate the definite article but rather the zero article with [+HK] context, 46% use of zero article compared to 34% definite article (Table 5) and 52% zero article against 25% definite article. This result could be generalized to L2 and L3 learners, but it must be borne in mind that there are differences in terms of the level of proficiency of learners in all the studies that used this approach. However, this conclusion is warranted, because all the studies in this framework were based on the total number of article types used in the two contexts, referential indefinite ([+SR]) and generic ([+HK]).

Implications and directions for future research

This study also shows that the semantic wheel framework for NP reference can be used to analyze the acquisition of articles in L3. At this stage of research into L2/L3 acquisition of the English article system using Huebner's (1983) framework, the plausible hypothesis is that the learners associate the definite article with [+HK] context. From Table 1, predictions about article usage or transfer can be enhanced using this framework as a supplement to the constraints on transfer discussed in the SLA literature: language level, social factors, markedness, language distance and typology, developmental factors. This theory will also be of importance in SLA if it goes beyond the scope of the article system, and is used in the study of the determiner system as a whole, since the referential system is only limited only to the article system. Research on the use of the article system in other francophone countries and especially with French students learning English should be undertaken in order to see if the results will give support or not to my findings in relation to the place of L1 in the learning process. Finally, in order to better compare Thomas (1989) with other L3 studies, it might be interesting to survey learners at the beginning and intermediate levels since in this study the learners were of advanced level. One of the reviewers of this paper mentioned that "recent research has shown that there are actually two zero articles, or rather, a differentiation between zero and null" (Master, 1997, SYSTEM 2:215-232). Future studies should take this differentiation into consideration when analyzing data.

APPENDIX: CLOZE PASSAGE

In the five unrelated passages below, write the missing article (a, an, the) which you think is correct in the space (......) provided. If no article is needed, put a "∅." DO NOT INSERT ANY OTHER WORDS.

I. Michael Faraday

Michael Faraday was one of those remarkable men who began 1.... life in 2... very modest circumstances and yet reached 3...... top of their profession through 4... determination and 5.... certain amount of 6... good luck. Although he began his career as .7... poorly educated bookbinder, he became internationally known as 8..... scientist before he reached 9..... age of thirty. He devoted 10.... most of his life to 11.... experiments with 12.... electricity. He was 13... man who invented 14... first dynamo as well as 15... type of transformer. ·

II. Money

Before 16... money was thought of 17.... men exchanged 18.. goods. This was not 19... best system as 20.... person might not easily find 21..... somebody who wanted what he had and could offer something acceptable in exchange. It is thought that 22.. first money consisted of cowry shells, which are found in many parts of 23... world. It was in China that 24..... idea of using 25... coins first arose. In ancient Greece 26... coin was worth, for 27....example, 28.. certain number of 29... oxen or 30... olives and could not be used to buy anything else. In time, 31.. gold and, 32... silver were used since these are among 33...most rare metals, but 34... money which we use nowadays is mostly 35.... paper notes. For 36... long time now 37... actual value of 38.... coin has borne 39.... little relation to what one can get for it, and 40.. paper note is practically worthless in itself.

III. The blind man

Her strength was unflagging. One or two early risers saw her, tried to stop her and ask where she was going. For they saw 41... young woman of twenty-five, with 42...long hair not too tidily plaited and with no head-tie to cover it, wearing 43.... loose house buba and 44.... faded lappa to match tied tightly around her thin waist, and they guessed that all was far from well. Apart from 45..... fact that her outfit was too shabby to be worn outside her home and her hair too untidy to be left uncovered, there was 46.... unearthly kind wildness in her eyes that betrayed 47.... troubled spirit. But so agile and so swift were her movements that she dodged 48... many who tried to help her.

By 49.... time she reached Oyingbo market, 50... sun was peeping out from behind 51... morning clouds. She was nearing 52..... busy part of 53.... town and there were already people about. 54..... early market sellers were making their way to 55.... stalls in 56.... single file, their various bundles tied and balanced unwaveringly on their heads. She collided with 57..... angry Hausa beggar who, vacating one of 58..... open stalls where he had spent 59.... night, was heading for 60.... tarred road to start his dayís begging. He was 61.... blind and walked with his stick held menacingly straight in front of him; his other hand clutched shakily at his begging calabash. Nun Ego in her haste almost knocked 62... poor man down, running straight into him as she too was without 63.... use of her eyes. There followed 64.... loud curse, and 65.... unintelligible outpouring from 66.... mouth of 67..... beggar in his native if Hausa language, which 68.... few people in Lagos understood. His calabash went flying from his shaky hand, and he swung his stick in 69.... air to emphasize his loud curse.

"*Dan duru ba!*" he shouted. He imagined that, early as it was, he was being attacked by 70.... money snatchers who want to rob 71.... beggars, especially 72.... blind ones, of their daily alms. Nun Ego just managed to escape 73.... fury of 74.... beggar's stick as she picked up 75.... calabash for him. She did this wordlessly though she was breathing hard. There was nothing she could have said to this man who was enjoying his anger, recounting what he thought was about to happen to him in Hausa. He went on cursing and swinging his stick in 76.... air as Nun Ego left him.

She began to feel fatigued, and from time to time whimpered like 77.... frightened child; yet she walked fast, resentful that she should feel any physical hurt at all. As she walked, 78.... pain and 79....

anger fought inside her; sometimes 80.... anger came to 81.... fore, but 82.... emotional pain always won. And that was what she wanted to end, very, very quickly. She would soon be there, she told herself. It would all soon be over, right there under 83.... deep water that ran below 84.... Carter Bridge. Then she would be able to seek out and meet her *chi*, her personal god, and she would ask her why she had punished her so. She knew her *chi* was 85.... woman, not just because to her way of thinking only 86.... woman would be so thorough in punishing another. Apart from that, had she not been told many times at 87.... home in Ibuza that I her *chi* was 88.... slave woman who had been forced to die with her mistress when 89.... latter was being buried? So 90.... slave woman was making sure that Nun Ego's own life was nothing but 91.... catalogue of disasters. Well, now she was going to her, to 92.... unforgiving slave princess from 93.... foreign land, to talk it all over with her, not on this earth but in 94.... land of 95... dead, there deep beneath 96.... waters of 97.... sea.

It is said that those about to die, be it by drowning or by 98.... gradual terminal illness, use their last few moments of consciousness going through their life kaleidoscopically, and Nun Ego was no exception. Hers had started twenty-five years previously in 99.... little Ibo town called Ibuza.

IV. Salmon

100...salmon is a very large fish with silvery skin and a yellowish-pink flesh eaten as food. Seven species of salmon can be found in the waters of the Pacific. 101.. salmon hatches and dies in the same stretch of a cool, fast-flowing river. During its lifelong journey to sea and back, 102.... salmon confronts both natural and manufactured dangers. Unlike 103... salmon, 104... whale is a mammal and 105... whale is a dangerous animal, and scares fishermen.

V. Land and climate

Deforestation has destroyed many southern forests, but palm trees are still found. In the sahelian area, 106... baobab is the biggest tree. Elephants, antelopes, monkeys, and snakes all inhabit Benin. Most snakes are poisonous, and 107... python is considered sacred.

NOTES

[1]This paper was presented at the 50th Kentucky Foreign Language Conference, University of Kentucky, Lexington , Kentucky, April 17-19, 1997.
[2]L3 in this paper is English that the student learned after having acquired one or more African languages (L1) and French (L2).
[3]The proficiency level of subjects correspond to the different academic levels: (a) DEUG 1, the lowest proficiency level, is the first year in the University after 7 years of secondary education; (b) DEUG 2, the next level, is the second year in the University; (c) Licence is the third year which corresponds to Bachelor's level; Maîtrise, the highest proficiency level, is the fourth year, the equivalent of Master's level. See Kambou 1997, page 34 for equivalents in US and Burkina educational systems.
[4]This total is calculated from the number of hours of classroom presence for each academic level assuming no student repeated one class.
[5]The irregular distribution of gender may be due to the fact that the subjects were volunteers.

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Interview with Elinor Ochs

Wendy Klein
University of California, Los Angeles

Dr. Elinor Ochs, Professor of Applied Linguistics at UCLA, is co-founder, along with Dr. Bambi Schieffelin and Dr. Shirley Brice Heath, of the field of language socialization. Dr. Ochs was educated at the University of Pennsylvania, where she studied with Dell Hymes, and earned a Ph.D. in anthropology. Her work takes an interdisciplinary approach to language in social context, bridging scholarship in the areas of linguistic anthropology, psycholinguistics, and applied linguistics. Her early groundbreaking study of child language acquisition in Western Samoa yielded important discoveries about the connection between cultural practices and children's pragmatic development. In Dr. Ochs's subsequent studies of grammar and discourse as resources for constructing identities and activities, she has explored what it means to become a culturally competent member of a community.

Dr. Ochs has examined how language is used to organize social interaction and construct knowledge in a variety of settings. In addition to her work in Western Samoa, Dr. Ochs has conducted ethnographic research in Madagascar, Italy, and the United States. Her current project involves examining high-functioning autistic children's discourse practices at home and in school in order to better understand these children's social, cognitive, and linguistic abilities. Dr. Ochs is a 1998 recipient of the John D. and Catherine T. MacArthur Foundation Fellowship, and a Fellow of the American Academy of Arts and Sciences. Her publications include *Developmental Pragmatics* (1979, with Bambi Schieffelin, Editors), *Language Socialization Across Cultures* (1986, with Bambi Schieffelin, Editors), *Culture and Language Development: Language Acquisition and Language Socialization in a Samoan Village* (1988), *Constructing Panic: The Discourse of Agoraphobia* (1995, with Lisa Capps), *Interaction and Grammar* (with E. Schegloff, S. Thompson, Editors, 1996), as well as numerous other collections, articles, and book chapters on language socialization, and narrative and discourse practices across cultures.

Klein: *Did something in your own experience or past make it meaningful for you to pursue the development of language socialization as an area of inquiry?*

Ochs: The language socialization study developed most immediately from doing fieldwork in Western Samoa, and it is indirectly related to my past because when you go to do fieldwork, you start to notice the things that are not obvious or not part of your own expectations. One of the things I began to notice is that people

were talking to children and around children in a way that was different from the way in which I believed people talked to me when I was little, and also the way in which I talked to my own children. So that became very noticeable and took more and more of my focus of attention. I was then spending a lot of time trying to reconcile what they were doing, and how they were speaking to children with what I believed to be quote — normal — unquote to do around kids.

There are two things that happened. One was an accounting of how talk to children is not something that is automatic, but rather is something that is deeply cultural. Trying to understand this got me thinking about looking at children's interactions with others as a cultural phenomenon and not simply as language development, not simply looking at linguistic input and linguistic output but looking at the communicative practices as cultural input and cultural output. I spent a lot of time situating the children's communication with other people in terms of larger dynamics that were running across different situations in the Western Samoan community where I lived. And then, at the same time, the more enduring consequence was to look back over my shoulder at my own cultural orientation to try to understand what was deeply cultural about the way in which my own community, which I would describe as mainstream upper middle class Euro-American, English speaking, and so on — to look at that community and try to understand it from an ethnographic and cultural perspective.

Klein: *Do you think that the cultural expectations that you brought to the Samoan study and the conflict that occurred between these expectations and what you observed somehow created a construct for analysis?*

Ochs: Yes, definitely, and that's when, well there were two things that happened — I wrote a piece called *Talking to Children in Western Samoa*, which brought out that issue, and I also wrote a piece called *Clarification and Culture*, and both of those pieces were about baby talk in Western Samoa. And then Bambi Schieffelin and I got together because she also found a very similar kind of dynamic that was happening among the Kaluli. We wrote the piece, *Language Acquisition and Socialization: Three Developmental Stories*, where we brought in not just the Kaluli and Samoan, but the United States situation and looked at that as just another developmental story, but one that was so prevailing. We deconstructed what is normal and natural into something that's cultural as well, and we drew on a notion that Sue Philips promoted in her study looking at American Indian children in school. She had this very interesting idea of "invisible cultures," in describing Indians who were using English, who were monolingual in some cases. Philips had the idea that even though they were using English, they were using it in culturally different ways. She suggested that Indian culture is invisibilized, because they're not dressed in obviously different clothes or speaking a completely different language — they were speaking English and they look like everybody else but they're not like everybody else — so there are cultures of English.

    We took the notion of invisible culture, saying that when you have a situa-
tion where the researcher is studying people from his or her own background and
writing for an audience of the same background, there is taken for granted cultural
information that is not specified but presupposed in the process of making sense of
these interactions. But if you take an interaction from some other community then
you have to specify all that information. We were looking at how the cultural
nature of the dialogues, between, let's say, a mother and her child, in the
psycholinguistic literature is invisibilized and then proceeded to make cultural
underpinnings visible.

Klein: *In your work you cover an incredibly diverse number of topics — language
acquisition in Western Samoa, interactions in family dinners, the discourse of ago-
raphobia, reformulations among physicists, and it seems that problem-solving is a
core theme throughout your work. How do you view the relationship between
problem-solving and language socialization?*

Ochs: I've often reflected myself, — what is the theme that holds all these things
together? People often ask — what have you studied? And I think to myself —
what should I tell them? Should I tell them about this? Or should I tell them about
that? Or if I told them about this, can I tell them about how this is related to that?
I think that problem-solving is something that not just the human species but all
species have to do and that social organization is a dynamic that exists largely for
problem-solving. I mean, you have a society — I don't want to have a teleological
notion of society here — but the viability of a society rests on its ability to cope
with ever-changing problems and is there to distribute problem-solving across a
range of more or less competent persons, and that it's also the case that societies
organize problem-solving in terms of rights and responsibilities in problem-solv-
ing activities.

    Formal schooling is dedicated specifically to inculcating competence in prob-
lem-solving in a number of different topical domains, therefore, I would say that
problem-solving is absolutely essential to culture. I'm not saying that culture is
coterminous with collective problem-solving, but it's integral to it. So looking at
socialization into problem-solving, I think, is a central part of what it means to
become a member of a community, a viable agentive member of a community, and
I think it is what makes us not just cognitively competent, but also able to partici-
pate in a number of different social activities. And I think a lot of the identities,
social personae, that people assume have a lot to do with problem-solving.

    There are so many different kinds of problem-solving activities. Basically,
you have story-telling as a kind of problem-solving activity, planning, arguments
are also problem-solving activities. You have error-correction and clarification as
a problem-solving activity. Then there are many sub-genres of these four basic
kinds of problem-solving activities, and that covers an awful lot of communica-
tion.

Klein: *So the process of examining problem-solving strategies like those you've just mentioned has played a central role in defining some of your previous projects...*

Ochs: Yes, the focus on problem-solving activities really came about with the family dinner material and looking at how families problem-solve around personal experiences of different family members by initiating and participating in narratives of their personal experiences — in shaping the ways of figuring out what happended and why it happened, and what that speaks to for future experience. Family narrative activity is extremely important in developing children's understandings of how to handle life problems and for socializing them into culturally preferred ways of handling those problems. Narratives define certain ways of behaving as reprehensible and certain ways of behaving as expected and preferred, defining violations and so on. This kind of collaborative problem-solving of personal experience is the bedrock for building community, family, friendships, institutions. It also socializes ways of thinking that we tend to think of as academic, where the material is not necessarily a personal life experience but some other kind of topic that's more academic in nature, like scientists trying to understand events in the physical world, for example. I relate how families problem-solve to how scientists or academics problem-solve.

In the agoraphobia study with Lisa Capps, the emphasis is also on problem-solving in the sense that the narratives of someone who is suffering from agoraphobia suggest a very different way in which problems are handled. First of all, sufferers display a lot of difficulty in defining what the problem is. Secondly, there's a sense that the narrator/protagonist can't solve the problem, can't handle the problem, that the problem is overwhelming. The sufferer has no internal control over some dilemma that exists and is instead a passive victim of a menacing situation. So there's a kind of dominant narrative construction of experience where instead of being an agent, the protagonist is swept away by anxiety. Because the agoraphobic can't cope, she doesn't put herself into any situation where she could possibly find herself being helpless. So she stays around very familiar spaces, often confined to home or very close proximity of home and becomes imprisoned in what is deemed secure.

This kind of problem-solving can be transmitted to kids through family narrative activity. If a parent suffers from this kind of syndrome, the kids are drawn into narratives of helplessness. When children try to suggest a way of handling a problem, the parent who suffers from an anxiety disorder will often dismiss that suggestion. So you have, for example, narratives about pit bulls, what to do if the neighbor has a pit bull and the pit bull gets loose, and the kids suggesting that they would call the dog pound and the mother saying no, that it would be too late, there'd be nothing to do. Or if a kid tells a story about some problematic situation, where the child did act agentively to handle the situation, the mother criticizes the child for being too aggressive or speaking out her mind, or the mother will dismiss

the threat as not being a real threat, minimize it, minimize the situation. There are a lot of different ways in which you get families socializing the inability to prob-lem-solve. Not all problem-solving activity is great and helpful, but instead can lead to mental suffering. That's the problem-solving thread in the agoraphobia study.

Klein: *What is it that usually initiates your interest in a research topic? How do you focus in on and decide on a specific area of research, does it develop over time, or is there usually something that sparks your interest ? For example, in your current study-*

Ochs: Most of the time, it's something that sparks my interest but there are many different paths. Generally, for diverse historical autobiographical reasons I write a proposal to look at a particular phenomenon. Like language development in Sa-moan children or problem-solving discourse in family interactions, or problem-solving discourse among the physicists, etcetera, and usually what happens in those cases is that something in one project leads me to do another project. But I can't tell you in the beginning...why I- sometimes it's just very serendipitous why I'm doing a particular thing, but then that thing leads me to something else.

It has always been the case that when I set out to do what I said I was going to do, that in the course of recording and or transcribing, that I notice something that I hadn't intended to study but seems really incredibly wonderfully interesting, and I start jabbering about it for a long time. And I usually end up writing about that more than the topic that I was going to pursue.

So, for example, in the physics study I started out looking at the relation between the collaborative narration of physicists and during the family dinner, and I ended up looking at how physicists use graphs, and problem-solve through using graphs, and taking liminal interpretative journeys and using a kind of language that is extremely unusual in everyday discourse, because that seemed to be an incredibly interesting thing to look at. So I spent a lot of time looking at that. And then Sally Jacoby and I also looked at the way in which physicists working out the rhetoric of a scientific presentation got co-authors who disagreed about the basic ideas to form a consensus about the ideas by working out what should come first and what should be left out because it's a ten-minute presentation. That was a really interesting phenomenon. But anyway, those two topics were not in the grant proposal. But fortunately, the Spencer Foundation is a wonderful institution be-cause it encourages that kind of noticing and writing. In fact, after I got my MacArthur, one of the first people I wrote to was a person at the Spencer Founda-tion, because I thought Spencer was really directly responsible in that they've been so incredibly supportive of spontaneity.

A similar thing is happening now with the autism study, which is to look at high-functioning autistic children's involvement in interactions at school and at home. There are two things we've become very interested in. Little did we know

that we were going to find children from diverse language and cultural backgrounds being high-functioning autistic children, and little did we know that parents would be told, once the children were diagnosed, to speak only English to their children, having spoken a completely different language to the child up to that point. That seemed so pressing and important to look at. And Tami Kremer-Sadlik wrote a qualifying paper on this pressing topic.

We have also looked at autistic children playing games — seeing that they seemed to understand the rules of a game but didn't have the strategies of the game, and which has, I think, tremendous implications for a notion of what it means to be culturally competent. And I have been trying to get every book I can get my hands on about rules. What's a rule? And what does it mean to follow a rule? And what's the difference between a rule and a strategy? Looking at autistic children is an incredible way of understanding culture. It's not just that they are culturally impaired but that actually they are revealing to me that a lot of things about culture — again it is this invisiblizing aspect — when you look at another population it makes visible this level of cultural knowledge.

The last thing I've become interested in — I was looking at a videotape that Olga Solomon had made in the house of a high-functioning autistic girl. The girl is looking at a video of a dance recital that she and her sister participated in, which she has looked at many, many times. This is something that autistic kids do a lot — they like to see things over and over and over again. She's looking at a dance performance by her younger sister, who is sitting on the couch next to her, and after it is over, she says, "That's a lovely dance. That's a lovely number," and then Olga repeats, "Yes, that was a lovely dance." I am struck by how different Olga's saying of the assessment is from the autistic child's assessment. Olga was saying it in such a way that it was to be overheard by the younger sister, and it was a way of giving a compliment. It was positive politeness. But when the autistic child was saying it, it seemed like she was only giving an assessment but wasn't necessarily doing it intentionally to make her younger sister feel good.

A similar phenomenon transpired when Tami and I went to another autistic child's house to film a dinner. When the door opened, the little boy who has autism answered the door and had the biggest smile from ear to ear on his face. It was incredible, just complete sheer joy at seeing us, which is great. But I was thinking that this was different from producing a social smile as a greeting to make the person that you're greeting feel good — doing something for the other person's face — it was different — it was that he was just feeling great and then we felt great because he felt great. But this effect was not necessarily part of his intention. I've become really interested in the connection of politeness with theory of mind, that people who are interested in theory of mind should really look at politeness. It struck me that it may be the case that negative politeness may require actually more theory of mind than positive politeness, because negative politeness is about not intruding on another person. Of course, you could teach a child who has autism a formulaic set of things to say like "please" — to learn as rote, but barring

that, it seems to me that negative politeness does require more theory of mind than a lot of these things thought of as positive politeness. So now I'm thinking that I want to see if the autistic kids have negative politeness as a way of seeing that they have theory of mind.

Klein: *Will the MacArthur fellowship allow you to pursue other areas of research that are not connected to language socialization — what are some your plans?*

Ochs: Yes, there are some things that are non-fundable, I suppose, and I'm looking forward to doing them. For example, I have been secretly accumulating information to do a project with a friend of mine on the making of a saint — looking at Dorothy Day, who was written about in the New York Times Magazine. She was the head of a publication called the Catholic Worker and was a very left wing radical. Some of her followers are saying that she should not be made a saint — that was last thing she'd want, she was an anarchist. There is negotiation about her identity. I'm fascinated that after somebody dies, their identity is continuously constructed. Being a saint is categorical — either you are a saint or you are not a saint. There is no idea that you could be a saint and an anarchist (laughter). You're either an anarchist or you're a saint. The way in which this dialogue is going is really, really, interesting and so I've been documenting it.

I've also become interested in the whole process of becoming a saint, requirements like having to perform a miracle. It's just fascinating how one actually determines if one is a saint — and I want to compare the process of becoming a saint to the process of becoming a star. A Hollywood star. And I'd actually like to compare the construction of the identity of Dorothy Day with the construction of Madonna. I think that would be interesting.

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The Neurobiology of Affect in Language by John H. Schumann.
Malden, MA: Blackwell Publishers, 1997, 341 pp.

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In his recent book, *The Neurobiology of Affect in Language*, John Schumann integrates neurobiological approaches to affect and cognition with Second Language Acquisition (SLA) research on motivation. From this synthesis of fields, Schumann develops a notion of motivation that identifies five key categories which may account for differential rates of acquisition among second language learners: novelty, intrinsic pleasantness, goal/need significance, coping potential, and norm/self compatibility. According to Schumann, second language learners use these categories to appraise stimuli. In fact, Schumann believes it is this dynamic process of appraisal that constitutes the affective basis for motivation in SLA. Although in Chapter 6 he does relate his theory to First Language Acquisition, the main focus of this book is the influence of motivation on the success of second language learning. Schumann attributes his initial interest in this area of research to Spolsky's *Language Learning* (1969) and Gardner's (1985) work on integrative motivation. The influence of these researchers is apparent as Schumann develops his theories and relates them to second language learning. He effectively builds a cognitive model for SLA that is based on biological processes and structures that purportedly determine a learner's propensity for second language learning as determined primarily by motivation.

Although his book contains complex theories from the field of neurobiology, Schumann presents his points in clear and understandable terms that should be well received by a wide audience. He does this in part by providing numerous schematic charts of neurobiological phenomena and also by glossing specific words that may otherwise be too technical. For those readers familiar with Krashen's work on the monitor model, black box, and affective filter (1985), this book may also serve as a bridge to help one transition from the more metaphorical models of Krashen's theories of affect and motivation to a more substantial understanding of the actual neurobiological structures that these metaphorical models often fail to account for.

Crucial to an understanding of Schumann's model of motivation is the premise of his theory: Emotion underlies most of what we consider cognition and accounts for variable success in language acquisition. Explaining the psychological and biological structures that account for such variable success becomes Schumman's goal in chapters one and two. Although many theories in psychology and SLA have often relied on computational or purely metaphorical models, Schumann in

chapter one delves into the actual structures of the brain that drive the second language learner's cognitive and emotional makeup. Central to this explication is the amygdala. As Schumann notes, the amygdala works in concert with other parts of the body to help the individual make some significant assessment of experience. The amygdala does this by assigning motivational and emotional value to the different experiences encountered by the individual. Such assessments are initially controlled by systems called homeostats and sociostats, which guide the young child to meet biological and basic social needs. As the child grows, she is socialized by the mother and consequently acquires somatic value (Edelman, 1992). For the child, somatic value is equivalent to knowing what the mother likes and dislikes. Unlike the innate sociostats and homeostats, somatic value is learned and develops over the lifetime of the child. It is the somatic value of a child that provides access to the mother's appraisal of the environment. As the child becomes less dependent on the mother, the child's associations are expanded and her own personality develops to reflect specific preferences. Superordinate to these systems is value-category memory. This system integrates the external stimuli from the outside world with the internal set of values (homeostats, sociostats and somatic value) that have been schematically associated with past experiences that moment by moment guide the individual's actions. Anchored to neurobiological structures, these categories depend mainly on the amygdala and limbic system, which integrate emotion with meaning.

In chapters three, four, and five, Schumann cites evidence from different studies that show how and why stimulus appraisal constitutes the affective basis for motivation in SLA. In chapter three, he compares his theory with work done by other researchers who have studied the issue of motivation. Although Dornyei (1994) and others are mentioned, the bulk of this chapter focuses on questionnaires designed by Gardner et al. (1985) to measure a learner's stimulus appraisal system. In chapter four, Schumann employs diary studies and autobiographies to more closely examine the role of stimulus appraisal in SLA. Schumann first provides the reader with numerous learner accounts of second language learning and then explains how these diary studies provide the researcher with a window of analysis into the learner's perceptions of novelty, intrinsic pleasantness, goal/need significance, coping potential, and norm/self compatibility with respect to the language learning environment. Although admitting to several weaknesses inherent in the use of such a device, he makes a strong case in this chapter for how stimulus appraisals help or inhibit the cognitive effort during second language acquisition processes.

In chapter six, Schumann explores the issue of affect in first language acquisition and suggests his stimulus-appraisal approach may be "a common denominator for all motivations and motivational theories" (p. 174). Although this may seem tenuous when one takes into account the still speculative nature of this field, Schumann reminds the reader that one day, with more advanced neuroimaging technology, we will be able to put his hypothesis to empirical tests. In some ways,

this may be one of the more compelling reasons to familiarize oneself with Schumann's work on the neurobiology of language, as opposed to other theories that seek to account for the role motivation has on SLA by solely metaphorical means.

Chapter seven examines the role of affect in cognition in a more general sense. In this chapter, Schumann juxtaposes the different concepts of cognition and then explains how they are all intimately related to affect. He also offers an intriguing explanation of how the body is used in cognition by citing evidence of congenitally blind children using gesture when they speak and by mentioning a discourse analysis study, which examines scientists and their use of gesture (Ochs, Gonzales, & Jacoby, 1996).

In sum, Schumann takes an immensely complex subject and makes it accessible to a wide range of readers. To further develop the concept of motivation, Schumann builds on his earlier theories of pidginization and acculturation and bridges what had seemed to be an insurmountable chasm between the fields of neurobiology and applied linguistics. Schumann's attempt to show how motivation—inseparably bound to cognition and emotion—heavily influences variable success rates in SLA is highly successful. This is a must read for anyone interested in the field of SLA.

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Local Literacies-Reading and Writing in One Community by
David Barton and Mary Hamilton.
London: Routledge, 1998, 299 pp.

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> The essential vocation of interpretive anthropology is not to answer our deep-
> est questions, but to make available to us answers that others...have given, and
> thus to include them in the consultable record of what man has said. (Geertz,
> p. 30)[1]

Through their meticulously researched ethnography of the literacy practices
of a community in Lancaster, England, Barton and Hamilton have added to this
"consultable record" and demystified Geertz's (1973) often ambiguous reference
to an anthropological account so rich in texture and detail that it situates the reader
at the very heart of the field site itself.

Their six-year study of reading and writing in the Springside neighborhood
of Lancaster, England, reads like a model ethnography for the graduate student in
anthropology, education, or applied linguistics. Barton and Hamilton enumerate
every step of the data gathering process and articulate their rationales clearly and
unpretentiously while effectively analyzing and developing their own theoretical
framework.

Nested in an emerging body of literature presenting literacy practices as
social practices, the theoretical framework for this ethnography reflects current
trends in the study of literacy. The authors' view resembles that of sociolinguist
James Gee, who considers literacy as something that is "not mastered by overt
instruction that deals with the superficial aspects of grammar, style, and
mechanics...but...learn[ed] by being enculturated into its social practices through
scaffolding and social interaction with people who have already mastered the
Discourse"(Gee, as cited in Purcell-Gates, p. 182). With such a theory in mind,
Barton and Hamilton set out to describe the neighborhood area of Springside in
Lancaster.

The first part of the book begins by proposing the framework for the ethnog-
raphy. Based on a view of literacy as social practice or "as the general cultural
ways of utilizing written language which people draw upon in their lives," Barton
and Hamilton denounce the reification of literacy in much the same way that Geertz
does for culture. In the first of the several commentaries interspersed throughout
the book, the theoretical framework for *Local Literacies* is summarized:

- Literacy is best understood as a set of social practices; these can be inferred from events which are mediated by written texts.
- There are different literacies associated with different domains of life.
- Literacy practices are patterned by social institutions and power relationships, and some literacies become more dominant, visible and influential than others.
- Literacy practices are purposeful and embedded in broader social goals and cultural practices.
- Literacy is historically situated.
- Literacy practices change, and new ones are frequently acquired through the processes of informal learning and sense making. (p.7)

The first section also situates Lancaster in time and space by providing an historical account of its literacy practices as well as a description of the city in the present time. The authors portray Lancaster as a working-class city with a strong sense of history, which is reflected through its Victorian architecture and documented through the autobiography of local hero William Stout, written nearly two hunded years ago. In addition, Springside, a pseudonym for the neighborhood from which much of the data for the ethnography was gathered, is described as an ethnically diverse community in relation to the rest of England. Its white, working-class majority live alongside a minority of ten percent Gujarati and Polish speakers. From the description of the structural conditions of the homes in this neighborhood, the authors also portray Springside as being at a slightly lower socioeconomic level than greater Lancaster .

The fourth chapter in Part I begins with a description of and rationale for the data gathering process or as the authors call it, "an ethnography in practice." Included in this section is an explanation of the various means for gathering data and a description of the project's participants. Overall, Barton and Hamilton performed twenty interviews on community college adults, administered sixty-five door-to-door survey questionnaires to individual households, chose four adults from various ethnic and social groups for case studies, and approached ten individuals from the subject pool to collaborate on the analysis of the data. They also implemented numerous other techniques, such as observations, photographing and document collection. This section, which may serve as a guide to ethnographic methods, concludes with a step-by-step description of the data analysis process and is followed with a caveat about the need to make this study and any ethnographic study relevant by using its findings to develop an understanding of similar contexts at a global level.

In the second part of the book, Barton and Hamilton feature four case studies of individuals who differ according to age group, gender, and ethnicity, describing each person's life history and literacy practices in terms of what they call a "ruling passion"; that is, the emotions and themes that seem prevalent throughout their experience.

The first case study features Harry, a veteran of World War II, who is con-

sumed by past memories of the war and by trying to sort out the unanswered questions he has about that time in his life. He primarily reads war books and engages in a great deal of writing about it. The war is Harry's "ruling passion," and in their depiction of him, the authors find strong support for their view that literacy is often used as a tool for sense making.

Barton and Hamilton also highlight Harry's perspective on literacy. In Harry's opinion, literacy divides the "educated" from the "uneducated." He defines "educated" as people who have a college education, and the "uneducated" as those who have had limited or no schooling. He sees himself, a drop-out at fourteen, as being somewhere in the middle, a fact which the authors imply affects his self-confidence with respect to his literacy skills.

The second case study features Shirley, who is considered a key figure in the community because of her expertise and involvement in formal organizations. Although the authors describe Shirley's "ruling passion" as working for justice and change, it also appears that she is motivated by a desire to positively cope with her son's dyslexia. Shirley embodies the authors' idea of literacy practices as purposeful and embedded in broader social goals. She habitually writes editorials for the local newsletter displaying her knowledge of dyslexia and raising the importance of other community issues.

In contrast to the first two case studies where subjects place high value on literacy in terms of books and extended writing, the third case study explores the life of a homemaker whose literacy practices reflect the authors' notion of literacy as a set of social practices that are mediated by written texts. June's literacy activities primarily consist of managing the household accounts, reading newspapers and magazines, and writing correspondence to friends and family. She uses literacy as a means to accomplish communicative tasks in her life. Various sources of media (i.e., computer, television, radio, etc.) play a more central role in June's life than actual books, a fact that does not necessarily diminish the role of literacy in her life.

Cliff is the subject of the final case study. After having lived in another town with his former wife and son for many years, he currently lives with his mother, half-sister and son. His "ruling passion" is "leisure and pleasure in life."(p.135) At the moment, he is unemployed but finds enjoyment in his life through music and comedy.

The authors explain that, "Just as Harry expresses in his interviews a central dichotomy of educated and uneducated, Cliff has a dichotomy of pleasure versus constraint and commitment." (p. 136) On the one hand, Cliff associates literacy with pleasurable activities such as writing to his favorite entertainer and composing letters up to twenty pages long to his friend. On the other hand, it represents part of his more serious commitment as a parent to help his son with schoolwork and also reminds him of his limitations as a sufferer of tinnitus, a hearing problem which causes a ringing of the ears and interferes with his ability to read and watch television. As a result, traditional literacy cannot stand at the center of Cliff's life.

Like June in the earlier case study, he must also rely on the conveniences of media such as calculators and telephones in his day to day affairs.

Through these four case studies, Barton and Hamilton examine a variety of ways in which people rely upon literacy. The authors demonstrate that literacy plays a central role in all of their subjects' lives—the nature of that role, however, varies for each individual according to his or her particular circumstance and motivation.

The final part of the book looks at the data in terms of themes and patterns, for which each section draws its title. Topics include: the range of literacy practices; the patterning of literacy practices; home, learning and education; the web of literacies in local organizations; literacy and sensemaking; and vernacular literacies. In their brief afterword, the authors summarize their findings, and challenge the reader to use this ethnography as a basis for expanding the traditional view of literacy. The data alone show that writing is related to the broader social practices of organizing and documenting one's life, leisure, sense-making and social participation.

In this study, the nature of literacy practices appears to have been influenced by age, gender, employment status, and whether there were children in the household. Interestingly enough, educational background did not seem to play a very important role in the number or quality of materials read. Such a finding helps to challenge lay assumptions that associate educational level with reading habits.

Another interesting pattern emerging from this ethnography is the relationship between literacy practices and gender. The authors found that there were indeed patterns in the types of activities performed by male and female subjects and how they were each perceived. For example, women were more likely to read novels while men were usually the purveyors of household bills. Women also tended to associate reading with relaxation while men thought of it as a means of accessing information. Nevertheless, there were enough exceptions as in June's handling of the household bills, to challenge stereotypical views of male and female roles with respect to home literacy.

The section on the patterning of practices also includes discussions about numeracy practices as literacy practices. The authors' implicit argument for their inclusion of numeracy is that numbers are part of a semiotic system in much the same way that words are. As with the written word, the use of numbers also involves a great deal of sense-making and problem-solving. In addition, bi-numeracy skills, such as the use of conversions in currency and measurement, are analogous to bilingual skills in that they require a type of conversion between different systems of representation.

Bi-numeracy is followed by a discussion of the multilingual literacy practices that are common to ten percent of the homes in Springside, primarily Gujarati-speaking Indians. These individuals generally use Arabic, English, and Urdu for specific purposes to assert different kinds of identities. For example, Mumtaz, a mother, full-time machinist and occasional translator at a local factory, uses Ara-

bic when reading the Kuran, Gujarati to write to family in India, and Urdu for religious instruction. She uses English when dealing with her children's schooling and the general community. However, the consistencies in languages used and literacy activities do not reflect narrowly defined identities. The authors assert that, "[different literacies]. . . partly represent tensions and a mixing of values in forging new identities and reconciling conflicts about changing values" (p. 186).

In the subsequent two chapters, the authors deal with "borderlands," a term coined by James Gee to challenge the assumption that literacy is confined to discrete domains. Although Gee's original use of the term refers to home and school relationships, Barton and Hamilton expand it to include literacy in the community. According to Barton and Hamilton's definition, literacy activities originating in the community and continuing in the home are also part of this borderland. These activities include writing letters back and forth between home and school, as well as the process of filling out forms that are used in the community.

One particularly salient assertion made by Barton and Hamilton in this section is that home activities, such as assistance with homework from parents or the interpretation of letters from school by children, count as literacy. Additionally, activities outside the home in local community groups and organizations, such as the keeping of minutes, the discussion of written agendas, and the maintenance of group finances count as literacy events. In essence, according to this view, any activity that supports learning, either formally or informally, belongs under what appears to be the enormous, all-encompassing umbrella of literary.

Part of the rationale for such a liberal perspective might reside in the notion that literacy is not optional in most people's lives, and that for many individuals, it is a viable resource needed to make sense of the world. Thus, literacy practices cannot be confined to the reading of "canonical" texts such as classical novels or science articles, which often have little bearing on the day-to-day needs of individuals. Instead, they must be comprised of activities that allow people to solve everyday problems, to structure the course of events, to deal with personal change, to access different kinds of information, and to pursue areas of leisure and interest.

In the process of pursuing such inherently literate activities, people gain different kinds of expertise and may themselves become resources for others, forming networks of mutually dependent relationships and connections with other individuals. Instead of the traditionally academic type of literacy, they gain a "vernacular literacy," one which uses everyday written materials such as telephone books, diaries, and newsletters. These are the texts of a literacy that is grounded in the social practices of "everyday life."

Through their clear and accessible account, Barton and Hamilton have defined and validated the oftentimes ignored literacies of the working class. Instead of recommending that greater use of traditional literacy practices be imposed for the 'good' of the people of Lancaster, the authors successfully demonstrate the complexity and practicality of everyday literacies and challenge their readers to expand their views of literacy. As Barton and Hamilton have shown, literacy prac-

tices are intrinsically shaped by people and the demands of their daily lives.   It is this dynamic interaction that affords literacy such centrality and permanence in our lives.

NOTES

[1] Geertz, C. (1973) "Thick Description" in *The Interpretations of Cultures*. New York: Basic Books, p. 30.

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SLA Research and Language Teaching by Rod Ellis
Hong Kong: Oxford University Press, 1997, 280 pp.

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In *SLA Research and Language Teaching* Rod Ellis addresses the existing gap between Second Language Acquisition (SLA) research and language teaching in the classroom. After initially demonstrating how the gap has developed and noting its continuing expansion, he attempts to bridge this gap. The book is divided into six parts: Background; Making Research Accessible; The Application of Theory; Second Language Acquisition Research in the Classroom; The Teacher as Researcher; Conclusion. It is aimed at language teachers who are interested in what SLA research has to say about language learning but who, perhaps, have found it difficult to apply the findings to the classroom. Ellis examines some of the research findings of the last twenty years along with factors affecting their adoption in classroom teaching practices. He presents the notions of implicit and explicit knowledge and introduces a model for using the research in this area to build a structural syllabus that is compatible with instructed language acquisition, as opposed to naturalistic acquisition. To further bridge the gap, he suggests that teachers carry out research in their own classrooms and defends this practice against the criticisms of SLA academics.

In the first part of the book Ellis examines the gap between SLA research and language teaching and also presents some ideas for bridging this gap. It seems that most SLA research in the 1960's focused on language pedagogy. There were two main approaches – research to investigate the relative effectiveness of different teaching methods and empirical study of how learners acquired an L2. The latter approach involved looking at individual learners and their errors. Teachers could easily relate to these studies which tended to be more rewarding than studies of methods in that they opened the way for further research. As a result, studies of L2 learning continued and "SLA was born" (p. 5).

As SLA grew, it became more of an academic pursuit in its own right as opposed to a support for the practice of language teaching. There are large bodies of research that have nothing to do with the classroom (e.g. research on Universal Grammar). Other fields of SLA have closer ties to the classroom. The study of the role of input and interaction in L2 acquisition and the study of form-focused instruction both address issues of extreme relevance to language teachers. However, the methods they have adopted in order to satisfy the demands of academia have made their findings of questionable relevance to the classroom.

As an academic discipline, SLA seeks to contribute to technical knowledge,

i.e., knowledge based on empirical study generalized so that it can address as many cases as possible. This knowledge has been codified so it can be examined analytically and disputed. Classroom teaching requires practical knowledge, i.e., knowing how to evaluate students' needs and choosing activities that suit those needs. Technical knowledge cannot be directly applied to classroom situations but can only inform decisions that are made on a more practical level. The question is, how can technical knowledge aid in the development of practical knowledge? How can the gap between SLA research and classroom language teaching be bridged?

Ellis proposes a number of models to address this question but settles on a framework based on Widdowson's (1990) view that an applied linguist should mediate between disciplinary theory/research and language pedagogy. Ellis proposes that SLA should be applied in the following ways:

1. Making SLA accessible – SLA research needs to be summarized and organized.
2. Theory development and its application - Theory construction is one way of operationalizing SLA for language teaching.
3. Researching the L2 classroom - Another way of operationalizing constructs is to investigate what happens in the classroom.
4. The teacher as researcher - Action research is a way of empowering teachers.

Ellis devotes the rest of the book to applying this framework to current SLA research in his attempt to bridge the gap between second language teaching and research.

MAKING SLA ACCESSIBLE

Since SLA research is written for researchers not teachers, Ellis feels that it needs to be summarized and organized so that language teachers can more easily access it. He suggests that these summaries can be organized around issues identified in the research (e.g. learner errors, input and interaction, fossilization, or the role of formal instruction) or issues based on pedagogical concepts (e.g. error treatment, the use of L1 in the classroom, or options in teaching grammar). In chapters 2 and 3 Ellis surveys SLA research regarding form-focused instruction from each of these perspectives.

In chapter 2, Ellis examines the issues that SLA has identified and traces their direct pedagogical implications. The issues of comprehensible input, form-focused and meaning-focused instruction, the quality of classroom communication, the effect of form-focused instruction on accuracy and on the sequence of acquisition, as well as the durability of instruction are discussed, and the relevant research referenced. Ellis synthesizes the literature well and comes to the following conclusions:

1. Teachers should teach grammar but the degree to which they teach it should depend on their learners. Students who have only been exposed to grammar need to develop fluency. Students who are learning under more communicative systems, however, can benefit from form-focused instruction because it can increase the speed at which they progress through the acquisition order.
2. Grammar teaching can and does work. There are conditions that apply to when it works and when it does not, and unfortunately, all the conditions are not completely clear. The learnability of the form and the level of the learner's interlanguage have an effect on the extent to which grammar teaching works.
3. SLA research does not point to what grammar features should be taught. There are a number of features that govern the learnability of a form (e.g. saliency, redundancy, frequency, scope and reliability, markedness and rule-boundedness) but the literature is unclear as to how these factors interact to determine learnability.

In chapter 3 Ellis uses the various ways of teaching grammar as a frame for investigating the SLA research in these areas. From this point of view, we see that the methodological problems of isolating teaching options creates all sorts of difficulties. He explains how classroom researchers are pulled in two directions:

> They need to produce good research but they may also feel the need to convince teachers. If they focus narrowly on specific instructional options, to 'tease out the variables'... they are in a better position to produce good research but run the risk of being dismissed as irrelevant by teachers. If they produce rich and varied instructional treatments they can satisfy the teacher but may produce research that is difficult to interpret. (p. 93)

Ellis brings attention to one study that balances the two sides well. VanPatten and Cadierno (1993) investigate the relative benefits of production-based and comprehension-based instruction. The study examined *form-focused instruction* (instruction focused on grammatical forms) and investigated whether production-based practice or comprehension-based practice produced better results. This study provides an example that is realistic in that it uses a number of instructional treatments, both consisting of several stages, but isolates one treatment for comparison.

THEORY DEVELOPMENT AND ITS APPLICATION

In order to operationalize SLA research for language teachers, Ellis argues that a theory must be developed and tested. Thus he proposes a theory of instructed second language acquisition that addresses the development of proficiency and the role of form-focused instruction. The theory is based on the distinction between explicit knowledge (i.e., knowledge that is analyzed, abstract and explana-

tory) and implicit knowledge (i.e., knowledge that is intuitive, that the learner is unlikely to be aware of). In this theory, explicit knowledge is the learner's conscious knowledge of surface-level rules of grammar. Ellis also proposes a second distinction, namely that of controlled and automatic processing. Knowledge can be processed in a controlled way, as in newly learned rules that are applied slowly

Types of Knowledge	Controlled processing	Automatic processing
Explicit	A A new explicit rule is used consiously and with deliberate effort	B An old explicit rule is used consciously but with relative speed
Implicit	C A new implicit rule is used without awareness but is accessed slowly and inconsistently	D A fullly learnt implicit rule is used without awareness and without effort

Figure 1: from p. 112

and methodically, or in an automatic way, as in rules learned previously and now processed with some speed (see Ellis' figure below – Figure 1)

In this model, there is a weak interface between explicit and implicit knowledge. Explicit knowledge can be converted into implicit knowledge if the rule is non-developmental in nature or if learners have reached that stage in their interlanguage development. Not all knowledge originates as explicit knowledge; it can be acquired as implicit knowledge with formal instruction helping to make knowledge automatic.

Extending his theory, Ellis next suggests that learning can take place on either an explicit or implicit level. Explicit learning is the conscious attention to new forms and their meaning. Sometimes the form is attended to at the expense of the meaning. Implicit learning is incidental, i.e., it happens while attending to some other activity. Ellis suggests that input becomes implicit learning when learners notice the form, compare the form to their own interlanguage, and then integrate the new form. Both explicit and implicit knowledge become automatic through practice. Implicit knowledge requires practice under real conditions, that is, interaction in which inaccurate utterances lead to misunderstanding and reformulation. Explicit knowledge can be practiced through more traditional grammar practice activities such as those in Penny Ur's (1988) *Grammar Practice Activities*.

Ellis continues his discussion with an examination of the structural syllabus as applied to implicit and explicit knowledge and presents some acquisition-compatible grammar tasks. He concludes that a structural syllabus is incompatible with implicit knowledge if the goal is production of accurate forms. If the goal is comprehension, however, a structural syllabus could be useful and promote input

enhancement and intake facilitation. In terms of explicit knowledge, Ellis finds that a structural syllabus can raise the learner's consciousness of the L2 grammar and the differences between the model and their interlanguage. One of the main points of Ellis' model is that that learners will not internalize, and hence be able to produce, forms that they are not developmentally ready for. As a result, comprehension-based practice is the best alternative in that it will give the learners practice in the form but will not impede production because of incorrect usage and embarrassing correction. To this end Ellis gives some very interesting comprehension-based grammar practice activities that require the learner to choose between alternative pictures based on sentences containing the target form. The activities include interpretation and consciousness raising tasks (i.e., tasks that relate the language to the learner).

RESEARCHING THE L2 CLASSROOM AND
THE TEACHER AS RESEARCHER

In the last two parts of the book, Ellis looks at classroom research. Ellis uses these projects to illustrate how classroom research can be carried out and to demonstrate how classroom interaction contributes to L2 acquisition. By including two examples of action research, he makes it clear that research carried out by teachers is just as valid as that carried out by SLA researchers though there may be differences in the focus. He also stresses the important role that action research plays in the development of the classroom teacher: By investigating their own teaching context in relation to SLA research, they help to bridge the gap.

I found *SLA Research and Language Teaching* to be a very interesting book. As a teacher embarking upon graduate work in Applied Linguistics, I find myself trying to bridge the gap between what is expected of me as a graduate student and what I do as a teacher of ESL. The gap, at times, seems unbridgeable; professors do not seem terribly interested in classroom research, and the focus is on "natural" language contexts rather than the classroom context. But as a teacher I cannot help but envision my studies in Applied Linguistics as eventually informing my classroom teaching. Reading this book has helped to re-affirm my view that language teaching can be informed by good Applied Linguistic research. So it is with renewed optimism and support from Rod Ellis that I hope to help bridge the gap.

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Sociolinguistics by Bernard Spolsky.
Oxford: Oxford University Press, 1998. 128 pp.

Reviewed by Jodi Nooyen
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Sociolinguistics by Bernard Spolsky is one of five introductory linguistic texts in a series called *Oxford Introductions to Language Study*, edited by H.G. Widdowson. The other books in this series include: *Second Language Acquisition* by Rod Ellis (see review by Carleen Curley in *ial*'s June 1997 issue), *Psycholinguistics* by Thomas Scovel, *Linguistics* by H.G. Widdowson, and *Pragmatics* by George Yule.

In the preface, Widdowson acknowledges that most academic introductory texts in the field are often quite specialized and long, which makes them rather inaccessible to the newcomer. Thus, the purpose of *Sociolinguistics*, as part of *Oxford's Introductions to Language Study* series, is to accommodate readers new to the formal study of language. As a brief yet comprehensive overview, this book is intended "not to supplant but to support" (ix) other sociolinguistic texts. Spolsky's *Sociolinguistics* is not only a good overview for beginning students of linguistics, but is also easily accessible for the lay reader interested in studying the relationship between language and society.

Spolsky's book is an overview of sociolinguistic sub-fields, theories and debates. Although it uses simple definitions and few references to introduce terminology and concepts, it provides a comprehensive overview. Opportunities for a more in-depth study are found in the extremely useful supplemental readings, reference, and glossary sections.

Spolsky admits that any overview of sociolinguistic concepts is "bound to be a personal view" (p. xi). Due to Spolsky's extensive knowledge and experience in various sociolinguistic realms, however, the possible limitations of his "personal view" are not a concern. Spolsky has previously published works as varied as an *Analytical Bibliography of Navajo Reading Materials* (1970), *Papers on Language Testing* (1967-1974), *The Languages of Jerusalem* (1991), and *Influences of Language on Culture and Thought* (1991). In addition, the reader is informed in the author's preface of his vast first-hand experiences in the study of language and culture in such places as New Zealand, Montreal, New Mexico, and Israel.

Sociolinguistics gives an informative overview of the various key concepts involved in this prominent sub-field of linguistics. Spolsky notes that, "in the thirty years or so that it has been recognized as a branch of scientific study of language, sociolinguistics has grown into one of the most important of the hy-

phenated fields of linguistics" (p. 3). "There are indeed," he further notes, "some sociolinguists who wonder how language can be studied in any other way" (p. 4). Spolsky gives readers not only definitions of key sociolinguistic concepts, but also illustrates each definition with several examples. Most importantly, he illustrates how these concepts interplay in the historical development of sociolinguistic theories and debates.

The book is divided into seven chapters, each focusing on a topic prevalent in current sociolinguistic research. These divisions make information easily accessible to a reader interested in one specific topic.

In chapter one, "The Social Study of Language," Spolsky defines sociolinguistics as "the field that studies the relation between language and society, between the uses of language and the social structures in which the users of language live" (p. 3). This chapter, as well as the following chapters, expands upon this definition by exploring viewpoints for study and providing many examples from modern and historical linguistic environments. This first chapter lays the foundation for scientific inquiry into sociolinguistics including its scope, complementary approaches, methodological issues, and techniques used by sociolinguists at work.

Chapter two, "The Ethnography of Speaking and the Structure of Conversation," introduces an approach to language study derived from anthropology. This approach, largely based on the work of Jakobson and Hymes, studies conversation as embedded in a sociocultural setting. The chapter begins with a linguistic view of a sentence; that is, how that sentence fits into conversation and the underlying socially recognized rules that allow communication to occur. These rules are defined in relation to the structure of conversations, politeness and politeness formulas, and terms of address. Spolsky gives a brief explanation of how each of these function in conversation.

In chapter three, "Locating Variations in Speech," and four, "Styles, Gender and Social Class," Spolsky looks at how these rules of conversation vary across speech communities, which he defines as "a group of people who speak the same language" (p. 24). Due to social factors that affect the speech patterns within these speech communities, additional variance occurs across repertoires, defined by Spolsky as "a collection of varieties of languages spoken by a group of people" (p. 25). The factors discussed by Spolsky include: (1) dialects which are located regionally or socially; (2) styles of speech patterns and their related differences and degrees of formality; (3) special varieties (registers or jargons) with a special set of vocabulary specific to a particular profession, social group or activity; (4) slang; (5) gender; and (6) social stratification. These six types of dialect and stylistic differences emerge through various processes such as physical and social isolation, changing speech styles for a specific audience (audience design), and modifying speech style to more closely approximate that of a listener (accommodation).

In chapter five, Spolsky discusses bilingual speakers, specifically how bilin-

gualism shapes their lives and what influences the language that they choose to use. Issues related to this topic include language socialization, different kinds of bilingualism, problems that competent bilingual speakers face, and the switching between or mixing of languages in a single conversation.

Chapter six, "Societal Multilingualism," takes another view of bilingualism by looking at it from the perspective of society. Spolsky begins with a historical perspective, noting that multilinguistic societies are the normative rule, not the exception.   Additionally, the languages in these societies have great political significance since, as the author notes, "the most common result of this language contact has been language conflict" (p. 55). Recently, as cross-linguistic contact increases, there is growing interest in language maintenance, language shift, and endangered languages (languages which are currently only spoken by aging adults). Such issues also carry great emotional significance since languages often indicate ethnic identity and establish social relations. Other issues covered include language rights, pidgins, creoles, Black English, and diglossia (when two different languages are used for two distinct purposes within the same society).

In the final chapter, "Applied Sociolinguistics," Spolsky attempts to demonstrate how sociolinguistic research findings have been applied to controversial social issues such as language policy and planning, and language education. Issues introduced in this chapter include how and where new words are adopted into a language, the world movement from normativism to prescriptivism for spelling, and how languages are spread. This chapter concludes with an important linguistic question for our time: Is the spread of English an example of imperialism or hegemony? As English continues to be the dominant language for international communication, it is an important task for sociolinguistics to understand the implications of this phenomenon.

The readings, reference, and glossary sections are great supplements to the survey.   The readings section, for example, is useful for connecting the basic concepts presented in the text with the dynamic world of research in the field. It provides references with short abstracts of significant contemporary sociolinguistic literature. These are accompanied by questions that engage the reader and encourage text comparisons. The following section, references, includes an additional but more briefly annotated list of useful books and articles recommended for further study. This section is particularly useful to the reader in that it classifies each book into levels ranging from introductory to highly technical. Also, as in the readings section, the references are ordered in a way that parallels the survey section, helping readers to choose texts appropriate to their particular interests. The final section, the glossary, is not only a useful dictionary of terms specific to the field of study, but also functions as an index.

Upon first glance, one might feel that *Sociolinguistics* is an extreme oversimplification of a complex field of study. How is it possible for a field as vast as sociolinguistics to be adequately covered in only 78 pages? Yet, this book is indispensable for the novice as an introduction to key concepts that are clearly ex-

plained through relevant examples. The well-organized layout of the series also makes the annotated bibliographical references and glossary especially accessible and useful. *Sociolinguistics*, by Bernard Spolsky, illuminates complex technical terminology and makes the interesting and dynamic world of sociolinguistics accessible to all.

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